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COMPUTERWORLD

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INSIDE

Managers in

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Smaller is Better

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Too Much To Take?

MIS views new PCs with skepticism.
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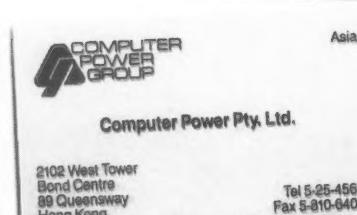
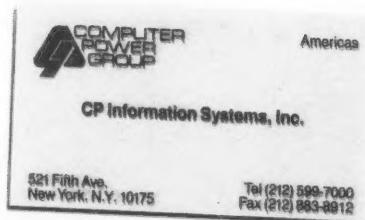
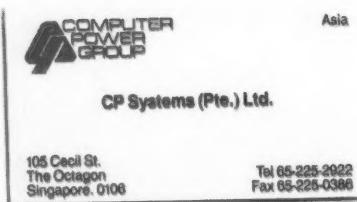
Revolutionary? Maybe

CASE overcomes early hurdles but faces more.
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This is the house that IS built. With the end of the decade approaching, the facade is more attractive than ever — but in 1989, how will the superstructure hold up?

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Budget process a toss-up as MIS juggles the bottom line

Some lose, some gain in struggle to merge present realities, future vision

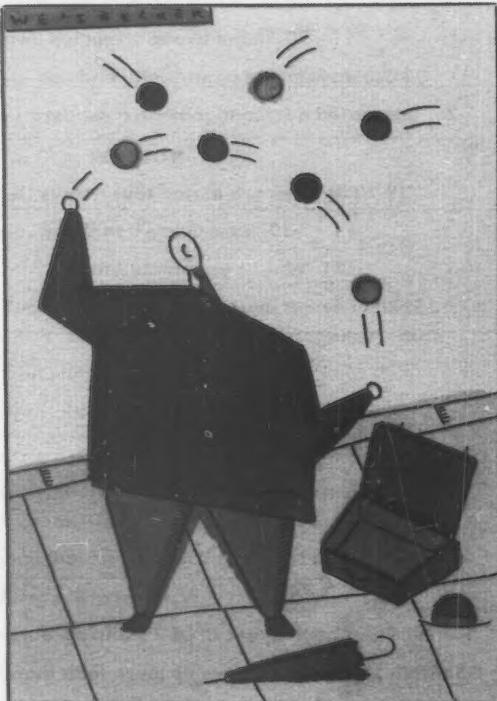
BY JAMES DALY
and ROBERT MORAN

Funny thing about the future. It's never how you expected it to look once it arrives. Nevertheless, MIS managers face the task of gazing into their crystal balls as they shore up their budget defenses for the next few years. The managers must consider an increasing number of external forces capable of generating economic turmoil.

Some managers are adding to their budgets while others are trimming, depending on top managements' perception of the vitality of the specific industry. Still others, like Jeffery Alperin, assistant vice-president for corporate technology planning at Aetna Life and Casualty Co., contend that such strategies are reactive and therefore viewed at Aetna as imprudent business practices. The trend at Aetna, Alperin says, is to cut costs without regard to forecasts.

The early portion of next year promises smooth sailing, according to analysts, as the economic honeymoon traditionally enjoyed by new presidential eras is expected for the incoming George Bush administration. Unfortunately, things begin to look a little cloudy after that. The most significant wild card promises to be international trade.

"Any position taken by the U.S. that is perceived as protectionist — whether against Japan or Europe — will be a very serious problem for the industry," says David H. Mason, vice-president of Boston-based Northeast Consulting Resources, Inc. Protectionist moves by Congress could result in a foreign-vendor backlash against U.S. companies that do a large overseas business. The result is higher expenses that are, in turn, handed



PHILLIPE WEISBECKER

down to the end user.

Although Japan is viewed as this country's chief foreign economic threat, Europe will take on increasing importance as the future approaches. By 1992, the U.S. could be facing nothing less than the economic unification of Europe.

Essentially, there is a movement that would unite all European countries into a single financial market. Tariffs would be nonexistent, and a single European passport would prevail. This unity could give European vendors an advantage in price wars with U.S. companies.

"The goal is to let a Siemens or an Olivetti become real world-scale competitors because they'll have the strength of a single European market to build on," Mason says. "The argu-

ment is that Siemens can't compete with an IBM because West Germany is too small a market. But if you unify Europe, you can create a handful of very big European competitors."

The Japanese still cannot be counted out either and are increasingly challenging U.S. businesses in core industries.

The Council On Competitiveness reports that by 1986 the Japanese had captured 65% of the world's semiconductor market, while the U.S. had less than 30%.

The council also sees storm clouds on the horizon: Within the nondefense category, the U.S. spends the smallest percentage on research and development directly related to industrial growth of all the major industrialized nations.

Perennial problems like the budget deficit also continue to nip at the heels of the U.S. economy. "Just how willing are foreign investors going to be to continue to pump money into our economy while we continue to run deficits?" asked Jack Biddle, president of the Washington-based Computer and Communications Industry Association.

Some analysts say these factors could put the U.S. economy in deep trouble. "Ultimately, whoever is the next president will have to deal with a recession," Mason maintains. "In some industries, we're seeing 40% of capital spending going toward information systems. I find it hard to believe that rate is sustainable and at some point that it has to back off. A recession could do that very quickly."

Tightening the belt

Such monetary uncertainties will require MIS managers to keep a tight ship, financially. A recent white paper from The Yankee Group in Boston claiming that the current rate of technological change could lead to a 100% turnover means the average system could have a life span of just 18 months by 1990.

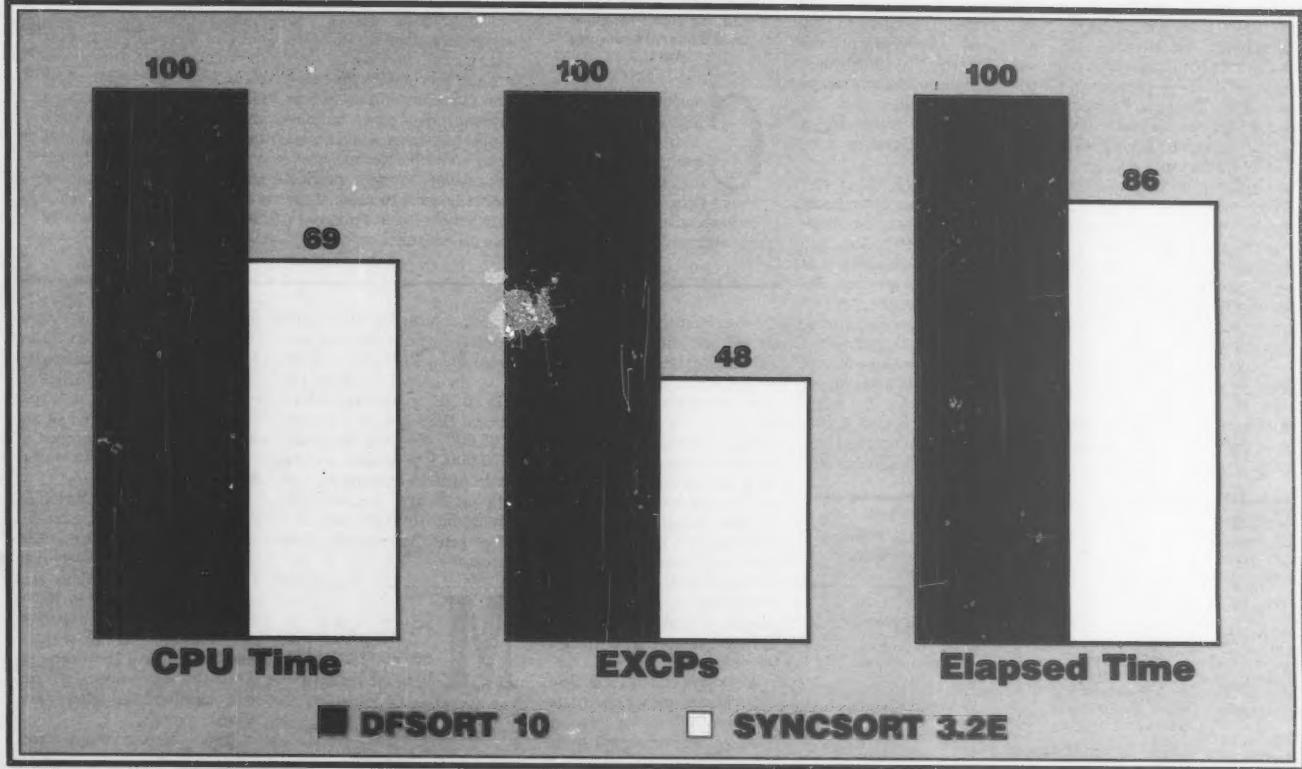
The streamlining that comes of this is also going to result in managerial changes, including a tighter connection between the chief MIS officer and the company chairman and a rethinking of the interaction between man and machine.

"We're competing for a shrinking number of qualified employees," Biddle says. "They don't want to do the dirty work anymore, and automation is the answer. But not automation in the past sense, in terms of simply replacing accountants and billing clerks, but using automation as a technique to tighten up the entire organization."

Fights over intellectual property rights also promise to shake up the MIS office. "The fact that you can secure rights to the look and feel of a program for the length of a copyright — which is

Daly is a *Computerworld* staff writer.
Moran is *Computerworld*'s Mid-Atlantic correspondent.

SYNCSORT ESA vs. DFSORT on a 3090 with MVS/ESA



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a hell of a long time — can get the whole of society into trouble," says Martin Ernst, an associate at the Center For Information Policy Research at Harvard University in Cambridge, Mass.

The factors that shape today's economic conditions doubtless influence information service budgets in numerous ways. Nevertheless, almost all large data centers are beset with what may seem — but are not necessarily — two opposing objectives: the need to mount costly strategic projects that will keep a corporation ahead of the competition and adherence to tight-fisted mandates on spending.

Aetna believes that a tighter budget leaves more dollars for strategic platforms. Alperin's department, for example, will function with a budget trimmed by 5% in 1989. "We will do more work than last year," he concedes, "but we are much more productive and are finding ways to do even more with less."

Unlike many companies that are just now facing the fact that the days of 10% MIS budget increases are over, Aetna's Alperin says, "as a whole we have been holding expenses pretty flat over the years and reserving any increases for very specific strategic areas."

In contrast, economic forecasts for 1989 coupled with the sting still felt from last year's stock market fiasco have flattened the MIS budget at Brunswick Corp. in Skokie, Ill., a large

Information services will slow down innovations, concentrating instead on stabilizing existing services to make sure they meet customer needs, with additional efforts to diminish customer complaints. In addition, MIS has felt the impact by having to do without some state-of-the-art equipment, Ellis says.

Ellis says the strategy will help the organization remain profitable if the U.S. economy remains stable. The reduced budget will also likely spare the company from having to cut back in the face of economic downturn.

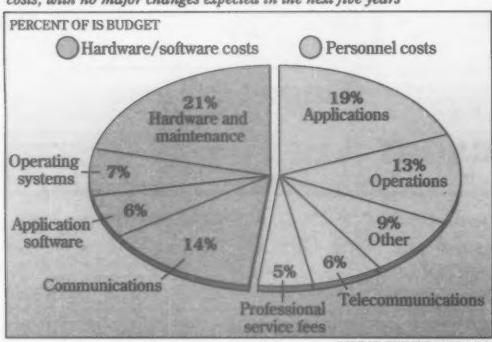
Times may be tight at Brunswick, but at American Industries, Inc., data processing manager Larry Potter says management "anticipates a rosy 1989, and its budgeting process will reflect it." The 1989 budget will post about a 5% increase, he says, slightly higher than last year's increase, reversing a downward trend evident since 1982.

Budgeting within the organization follows steel industry trends and looks over the shoulder of its subsidiary, American Steel Division, the benefactor of most of the MIS services. According to Potter, the steel industry does not necessarily follow the rest of the economy.

"Although management projects a cool national economy for 1989," Potter says, "it anticipates a good year in steel, helped by both foreign importers and the voluntary trade agreement."

Sharing the wealth

According to a 1988 survey of IS organizations, the average IS budget was spread almost evenly between personnel and hardware/software costs, with no major changes expected in the next five years



manufacturer of leisure products, according to MIS director Brian Ellis. The watchword at the company is caution — and that caution spreads to strategic planning methodology, old and new applications, innovations and personnel.

The company now has a formal three-year strategic planning curve — the direct result of the October 1987 crash and economic forecasts, Ellis says. The current MIS budget, which has been cut by an unspecified amount, now spans from 1989 through 1991.

American Industries plans for two years and budgets for the coming year. Those budgets, reviewed quarterly and matched against quarterly forecasts and division results, enable MIS to react quickly, he says.

With a good year projected by management, MIS will likely add one staff member and concentrate on a growing application load and on meeting increasing user demands. In addition, Potter hopes to complete a few projects that have been on the drawing board.

If, however, the economies of

Computers have made 'change' the watchword of the work force



Terry R. Lautenbach
Senior Vice-President
and General Manager
IBM U.S.

Computers are changing the way we work for both individuals and organizations. By providing timely access to relevant data, computers allow us to spend less time researching and verifying information

and more time getting things done. This makes for faster, more informed decision making and it improves our effectiveness and productivity.

Today's computer systems speed memos, documents, images and graphs to individuals throughout an organization. This kind of direct people-to-people communication results in more focused and efficient dissemination of information.

New technologies are bringing more capability to computers, allowing users to manipulate, understand and analyze data in ways they never could before. With access to company databases, decision support systems, expert systems and other technologies, information workers ranging from engineers to scientists to loan officers can work even more effectively.

Computer imaging is another dramatic example of how new information technologies affect work. By reducing paper-based customer information, businesses can realize millions of dollars in savings and significant improvements in customer service.

As organizations become more competitive, the management of information as a strategic resource becomes paramount. A major challenge in the '90s will be the development of software to support the computers that help people to better manage the flow of information. With advanced graphics, touch screens, voice and image recognition running on high-performance hardware and software, computers will continue to make "change" the watchword of the work environment. *

the steel industry turn sour, Potter will first cut into staff perks and conference attendance. The second round would trim services and the third, equipment expenses. "We can judge when to react by measuring the cycles of our business against anticipations for the coming two quarters," he explains.

Like American Industries, Scott Paper Co. would battle a disastrous economic year by trimming conference and training expenditures. But MIS director Ronald Renk does not expect to have to resort to anything of the sort.

Renk says that in 1989, Scott MIS will implement a few strategic projects. Costs for these will represent one increment to the increased budget, which is based on current performance. The other increment, he says, will account for inflation.

At Express Freight Line, Inc., data processing manager David Schmalz has yet to post his 1989 budget, but he anticipates that MIS, like other departments, will have to cutback.

Schmalz does not anticipate a recession in 1989 but says the tight budget is a reality in an industry fraught with competition. "Freight discounts are way out of hand — between 50% and 60%," he says. "The only way to make it up is to cut expenses. It comes down to MIS and other departments."

As a result, he says, development projects "have been slowed, but not stopped, because of staffing shortages and a shortage of tools to speed the development."

At Radnor Corp., a wholly

owned commercial real estate subsidiary of Sun Corp. that generates about \$30 million annually for the parent company, the MIS budget will increase three times in 1989 — from a meager \$100,000 to approximately \$300,000. The budget, according to Alan Alesius, manager of data processing, will increase throughout 1990 but not anywhere near the expected 1989 increase.

MIS MUST solve the problem of mounting costly strategic projects while adhering to tight-fisted spending mandates.

Economic forecasts at the company are keenly scrutinized because of the close tie between economic conditions and the purchase of homes as well as business real estate.

"If the current expansion continues, Radnor should experience a year of decent — but not explosive — growth," Alesius says. "If there is an economic downturn and interest rates go up, people will sit tight. It will be a tougher time."

But for the MIS manager, ironically enough, a bad year could be a blessing. Recent companywide growth has diverted the attention of key personnel, leaving little time to attend to standardization and policy issues.

"Our projects portfolio has

grown so large that few people have had time, for example, to contribute to getting remote locations standardized," Alesius explains. "1988 was a good year," he adds. "We are looking to add value to the corporation in 1989. It is a good opportunity for MIS."

At Echlin, Inc., a completely decentralized company, some divisions are posting budgets that are over last year's by between 5% and 15%, while others are staying flat, according to Richard Hock, MIS director at corporate headquarters. "We're running like we have always run in the past — carefully. But we have not attempted to curb expenses," he says.

While some divisions have added to their budgets, the MIS budget at headquarters, which Hock oversees, has been dropping for the last seven years. This year, Hock has trimmed the budget by \$350,000 — the result of a recent conversion from a mainframe- to a micro-based platform. Hock noted that his practices are not indicative of the other units, although some are leaning to minicomputers and microcomputers.

Hock said he does not anticipate a "deadly economic year" but that if he were forced to trim expenses, he would first freeze capital expenditures and then trim staff. But he said he does not expect to have to resort to such measures. Although Echlin is not recession-proof, he points out, people who do not replace cars do more repair work. "Our 1989 runs started in August, so we are [now] in 1989 and having a good year," he says. *

Calling the shots for '89

BY MARK BREIBART

It will take a hardy MIS manager to weather the business and technology trends of 1989. Here's a little help from leading forecasters on what to expect in key areas:

Management Strategies

"MIS executives have to get their house in order. For example, they have to get rid of the multiplicity of languages and architectures so they can move more quickly on new technologies. And they have to institute more realistic chargeback systems. They have to hire people with business savvy into MIS positions, even if [these people] are not technicians. If they don't, we're going to blunder into the '90s with the wrong people in the jobs."

Ted Freiser, president

John Diebold Group, New York

"Companies in the '90s will have to understand how to integrate technology into the business. They have to stop viewing MIS as a cost and start utilizing it to make their companies more competitive."

Jim Hall, principal

Index Group, Cambridge, Mass.

Large Systems

Companies will be changing to or considering a two-tier environment rather than a three-tier strategy over the next 18 to 36 months. The architecture will have a layer of micros talking to host IBM 3090-class machines, with servers in the middle based on machines using the 80386 and 80486 chips. DEC won't be able to compete because it has no viable high-end or PC solution.

*Robert Tasker, vice-president
International Data Corp. (IDC),
Framingham, Mass.*

"The on-line processing systems of the '80s will give way to ad hoc computing in the '90s, with a lot of canned intelligence in the low-end systems."

MIS directors will have to get on top of the trend to give the user more control, instead of fighting it.

*Curt Beaumont, director
Systems and Peripherals
Technology Service, IDC*

Mid-range Systems

Next year is not going to be pretty. Particularly at the low end, PC LANs — not minis — will be the preferred choice. That approach will also hold true for larger systems when SQL server software becomes available for distributed processing.

DEC's low-end VAXes could soon be in trouble. Even for larger systems, users will eventually throw out their VMS applications and go to third-party programs on the PC. The VAX will become a network server, but only if DEC moves to a standard operating system like Unix and if the VAX is optimized as a server instead of as a time-sharing machine.

"For IBM shops, the focus of SAA is wrong. What's being touted is the ability to push applications onto bigger machines. But people want to move applications to smaller machines, down to their control."

*John McCarthy, director
of professional systems research
Forrester Research, Inc.,
Cambridge, Mass.*

Breibart is a Flugelman Intern working with Computerworld Focus on Integration.

DEC will try to preserve its proprietary systems. That should be easy for them, at least in the short run. Too many people are happy with VMS.

IBM's AS/400 shows there is still a lot of growth for multiuser systems, some of it as network servers in large firms, but much of it in the small-business market.

Other minicomputer companies will either emphasize nonproprietary systems like Unix or focus on niche markets like Wang with image processing or Prime with CAD/CAM.

*Brian Daly, senior associate editor
Datapro Research Corp., Delran, N.J.*

Communications

"Growth in the LAN market will continue to be impressive, with token-ring networks increasing even faster than Ethernet ones."

"There will be a gigantic leap in the use of high-performance and superperformance networks with speeds from 100M bit/sec. on up."

*Brad Baldwin, industry analyst
Dataquest, Inc., San Jose, Calif.*

Software

"There will be more talk than reality about distributed database systems. The technology is here, but users won't be ready for it until they change their view of the proper architecture. For example, the classical database notion is to reduce data redundancy. But as the rules of end-user

access have shifted, and as we have LANs with 450 users on them, we cannot have one database that serves all purposes."

*William Inmon, senior principal
American Management Systems, Inc.
Lakewood, Colo.*

Nineteen eighty-nine will be the year of the distributed database. The software will center around SQL and PCs based on the 80386 chip. If these products deliver as much as promised — and it's a big "if" — they will provide an alternative to minis and mainframes.

Standards will be a bigger topic than they have been at any other time this decade.

*George Schussel, president
Digital Consulting, Inc.,
Andover, Mass.*

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	STD	COMPR			STD	COMPR	STD	COMPR			
BIG.CLUSTER	37155	37155	27855	15600	25	58	4754670	233	580	502	
CICS.FILE.MASTER..TABLE.CLUSTER	21000	19005	12720	9495	33	50	5068165	150	150	150	
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Clearing the obstacles to CIM

BY ELISABETH HORWITT

Computer-integrated manufacturing (CIM) is finally escaping from vendor brochures and "factory-of-the-future" prototypes into the business mainstream. This trend, which began last year and should gain momentum in this one, derives from two related developments.

One is the emergence of communications standards and computing platforms that make it much more feasible for manufacturing companies to coordinate information flow among islands of automation. The other is the increasing number of users who have shed their skepticism and become believers in the feasibility and ultimate payoffs of CIM.

Users' increasingly positive attitude toward this technology was reflected in an Autofact '88 attendee's definition of the discipline: "Cost-cutting on units, doing away with human error, cutting setup and lead time and cutting inventory."

Half-empty glass

Two or three years ago, many manufacturing information systems managers focused on the difficulties rather than potential payoffs of CIM — chiefly, the task of linking together a multi-vendor melange of factory equipment, hosts and controllers.

This was understandable because, at that time, the job was a formidable one that daunted all but a few giants such as General Motors Corp. and Boeing Computer Services. Few tools existed for integrating manufacturers' multivendor equipment and software installations, which meant that the communications foundation for CIM had to be developed from scratch — and at great expense.

According to Darryl Cain, a supervisor at Deere & Co.'s Harsco Works, CIM implementation is still "a long road to uncertain goals, and the question management asks is, 'Will CIM ever be complete?'" But now, more and more companies — including Deere — have made CIM an intrinsic part of their competitive strategies. And they are much more confident that

Payoffs have users looking at integration management

the implementation can be done at reasonable cost.

A major reason for that confidence is the maturing of communications standards such as Manufacturing Automation Protocol (MAP). Until mid-1988, industry players still seemed to assume that manufacturers needed to settle on just one set of protocols.

Debate on the comparative merits of Ethernet and MAP's Token-Bus protocol on the factory floor was stormy, with Digital Equipment Corp.'s combative chief Ken Olsen keeping the pot boiling with his frequent MAP attacks. Another fierce argument raged over the question of whether, or even when, users should migrate from their existing Transmission Control Protocol/Internet Protocol (TCP/IP) installations to MAP.

This year, with the long-

awaited arrival of Version 3.0 last spring, MAP has achieved some degree of stability and vendor support. However, it is unlikely to be adopted universally because many users solved their multivendor connectivity problems years ago with older protocols such as TCP/IP, Decnet and Ethernet.

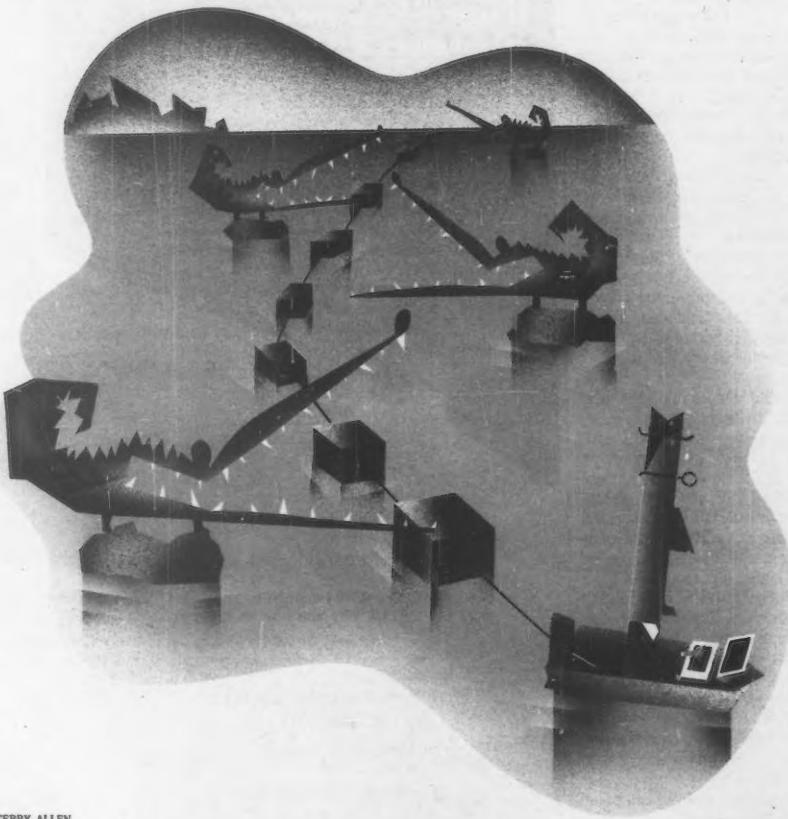
These users are reluctant to throw out their existing networks just to become MAP-compatible, according to a recent user survey by Advanced Manufacturing Research, Inc. (AMR), a Cambridge, Mass.-based research firm.

But now, most major vendors — DEC included — are promising support for MAP, TCP/IP and Open Systems Interconnect pretty much as a matter of course, and the choice of standard is becoming "somewhat of a nonissue" for CIM implemen-

tors, according to AMR President Anthony Friscia. Many users have discovered that they can mix and match various networking protocols.

As Tim Dirr, a computer-aided design (CAD) applications engineer at 3M Co., put it, "It would be great to have just one networking standard, but I'll settle for two or three."

But this level of integration is the easy part of CIM. As the new year comes in, the main concern of many implementors is how to develop applications to manage information flow between different work areas across various hardware and software systems. This is necessary so that, for example, design change orders go to the business host for approval, out over an electronic data interchange link to suppliers and down to the cell controllers for implementation into the

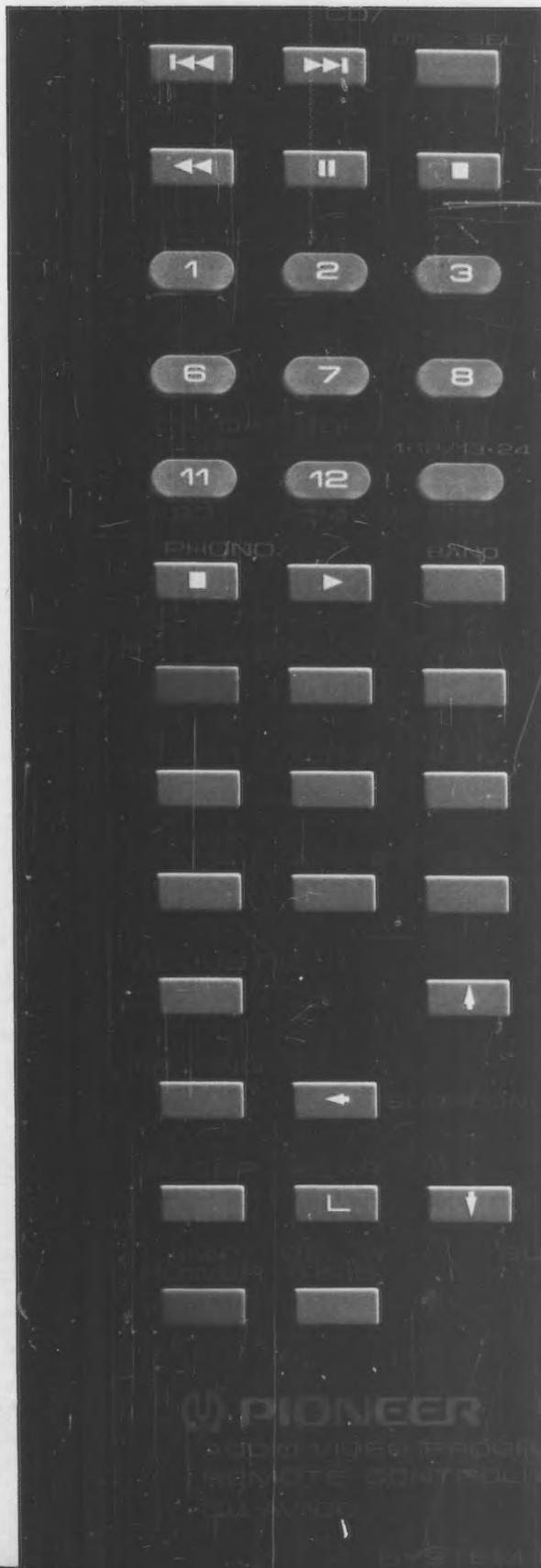


Horwitt is a Computerworld senior editor, networking.

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manufacturing process.

Vendors are just starting to come up with CIM solutions on this higher, more complex level.

First, they are aggressively entering alliances with other hardware vendors, particularly controller vendors, according to DEC Vice-President Bruce Richardson.

"The goal is not cell control but cell integration," he says. "If we're building vitamins or cars, we don't want to walk down to the factory floor with the ordering slip." Mainframe scheduling systems need to be linked to area controllers that coordinate production on the factory floor "so no order is done until the day it's due," Richardson says.

Last fall, DEC and Allen-Bradley Co. announced their Pyramid Integrator. The device comprises an Allen-Bradley cell controller, which provides links to shop floor devices, and a DEC Microvax processor module, which provides integration with plant and area management applications that typically run on DEC systems.

Another recent alliance for integration was formed between Motorola Computer X, Inc. — a Motorola, Inc. subsidiary — and Stratus Computer, Inc. Computer X offers a hardware platform for coordinating the different cells on a factory floor, each of which can be working on a different part of a product or process.

Keeping track

Stratus sells its fault-tolerant hosts as area controllers that can coordinate activities across the plant; it also provides links to design and engineering workstations and IBM hosts that often run administrative and scheduling applications such as manufacturing resource planning.

Computer vendors are also reaching out to the CAD/computer-aided manufacturing side by supporting manufacturing's dominant communications protocols. Both IBM and DEC, for example, have announced support for Sun Microsystems, Inc.'s Network File System and Apollo Computer, Inc.'s Network Computing System. Apollo and Sun have reciprocated by supporting Decnet and Systems Network Architecture. As a result, Sun engineering workstations can send design documents directly to IBM scheduling and bill of materials systems.

But customers want more than just a physical link in order for graphics documents to be sent to the shop floor in a useful form, according to Donald Bell-Irving, a manager of DEC's CIM applications marketing group.

"You need low-cost graphics devices on the shop floor and a fast LAN; but even more, you need a compound document technology" that allows users to append routing slips, comments and changes to a design as it moves from one manufacturing

area to the next, he explains. "That technology is just becoming feasible."

The big computer companies' other major marketing strategy is the CIM software platform — a common user interface, communications and database environment that runs on their favorite hardware platforms (see story at right). They are also working with software companies to produce applications and development tools for their platforms.

The software platforms address what Anthony Klemmer, a vice-president at ITP Boston Inc., a Cambridge, Mass., consulting company, refers to as a "technology backlash" against customized CIM applications that were too costly to be practical. "If you can integrate and automate in pieces a platform

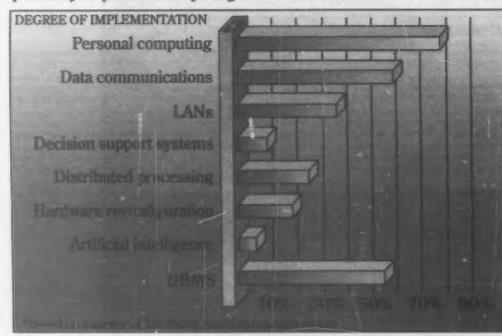
shelves and within their own installations.

Savvy IS managers are also tying their CIM plans to specific business goals, rather than taking a wholesale approach to the technology. For example, rock-bottom interest rates and a depressed economy in the early 1980s drove Deere to find ways to cut inventory and production costs via CIM, according to David Scott, manager of marketing for Deere Tech Services. "When interest rates are 22.5%, inventory starts eating up a lot of cash."

The manufacturer implemented a top-down plan with a bottom-up implementation that "made use of existing equipment and didn't go overboard putting technology in for technology's sake," Scott emphasized. The payback: Deere just announced

Work tools

*Manufacturing companies are focusing their implementation energies primarily on personal computing and communications**



SOURCE: TOUCHE ROSS MANUFACTURING SERVICES CW CHART

that allows you to reuse software, standardize additions and thus lower costs, it is well worth it," he says.

Several users, however, say that this latest wave of "open" software interfaces is too recent for them to judge its usefulness to their CIM plans. Some worry that if they choose one vendor's software platform, they will not be able to install those devices that do not support it.

What to do

The solution to this problem is for the host vendors to migrate their software platforms to industry standards such as MAP, according to James Cae, director of manufacturing systems at GM. Cae was in charge of CIM at the famous Saginaw plant.

This migration would be a benefit to CIM implementors, since the platforms would provide something that MAP currently lacks: a standardized foundation for application development.

Rather than wait for vendors to come out with more complete CIM standards and better development tools, many manufacturers are going ahead with CIM implementations — with development plans carefully geared to take advantage of what is out there now, both on vendors'

record earnings for 1988, and its factories can continue to turn a profit even running at 30% to 35% capacity.

Deere was among the pioneers, but a number of other companies are turning to CIM.

Barring catastrophes in the manufacturing sector and the U.S. economy in general, we should see a snowball effect in the CIM world in the next few years. As the new wave of CIM implementors report the paybacks they have gleaned, yet more companies will be encouraged to start their own installations. This, in turn, will cause vendors to accelerate their efforts to provide better products and tools to gain greater shares of the burgeoning CIM market.

While the term "computer-integrated manufacturing" was coined only a few years ago, the networking, software and computing technologies that serve as CIM's foundation have been developing for decades.

This should reassure IS managers who do not like to bet their budgets on untested products. While the leading edge of CIM technology may be vaporware, there is now a solid body of available products to get implementors going. It's time to take the plunge. *

What's expected for CIM in 1989

Manufacturers can expect the major computer vendors to come knocking on their doors in 1989 with a bouquet of new software development tools, third-party alliances, networking products and "open" interfaces.

These offerings, many of which were announced in 1988, were designed to position each vendor's favorite system as a computer-integrated manufacturing (CIM) platform that will provide links to other devices in other areas of the manufacturing environment. What follows is a brief rundown of what the customer can expect to see from the three major players.

One factor that will influence how well these vendors can sell their respective CIM platforms is their share of the area-controller market, says Advanced Manufacturing Research, Inc. (AMR), a Cambridge, Mass.-based market research firm. Such devices could easily be CIM linchpins, since they provide coordination across cells as well as the link to plantwide scheduling and manufacturing resource planning (MRP) systems. Market share figures are AMR's.

• **IBM's** market share in area control is between 8% to 10%. An obstacle between IBM and CIM market success has been the incompatibility of its product lines — particularly the Personal Computers it sells to cell controller manufacturers and the mainframes that run MRP.

Late last year, IBM began to address this problem by, as one company spokesman put it, "moving Systems Application Architecture [SAA] down to the factory floor." SAA is a set of interfaces designed to provide application portability across various IBM product lines. Late last year, IBM introduced the Distributed Automation Edition (DAE) platform for cell control.

Running initially on the Personal System/2, OS/2 Extended Edition and later on a 9370 running VM, the platform is said to include SAA communications and database elements and, soon, OS/2-based Presentation Manager user interface elements for CIM application development.

IBM is also aggressively seeking third-party application developers to support its platform: It announced more than 30 such partners at Autofact 88. The platform will initially support several vendors' shop-floor devices, including Allen-Bradley Co.'s, IBM says. Its open inter-

face is available for other vendors that want to tie in their own systems. Look for IBM to extend or at least link its DAE platform to its MRP hosts via SAA.

• **Digital Equipment Corp.** has an area-control market share of 40%. DEC is applying its "We have it now" strategy to the manufacturing sector. The company is marketing a CIM platform based on its VAX/VMS systems, RDB database and Decwindows user interface.

While it does provide some CIM software development tools, DEC's specialty is working with niche vendors to develop software solutions that run on its VAX/VMS platform, a company spokesman says. The first two solutions were announced at Au-

AN OBSTACLE between IBM and CIM market success has been the incompatibility of its product lines — particularly the PCs it sells to cell controller manufacturers and the mainframes that run MRP.

tobact 88. DEC plans to introduce more this year, along with VAX software that brings scheduling and status information from an IBM MRP system down to the shop floor.

Unlike IBM, DEC is not trying to compete with cell controller vendors but only to sell them Microvaxes as the basis for their products, the company claims. (IBM does this too, with its PCs and now PS/2s). DEC's latest deal of this kind was with Allen-Bradley, which has long been a big consumer of IBM PCs.

• **Hewlett-Packard** Co.'s share of area-control market is around 22%. HP's CIM platform is the HP 9000 running HP-UX. However, a major HP reorganization late in 1988 put together the HP 3000 commercial group and the HP 9000 technical sectors into one manufacturing application group. Seamless migration of applications from one type of system to the other is a natural evolution, says HP product manager Jane Forster.

During the past year, HP has introduced HP-Industrial Precision Tools, a software development environment that provides software for data management, human interface and cell device connectivity that can be reused for different CIM applications, Forster says. *

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As Bush team boards carousel, high-tech prepares for the ride

Pondering new approaches for new players

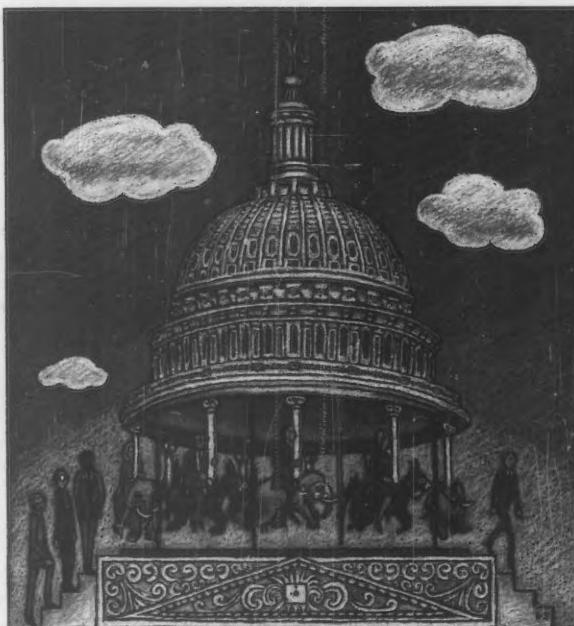
BY MITCH BETTS

Sometimes Washington seems a little like a TV game show — the categories stay the same, but the players keep changing. In the coming year, the categories for the federal policy game will sound quite familiar: taxes, trade and telecommunications, the three Ts. But now the computer community gets to deal with a new set of players, namely the incoming administration of President-elect George Bush.

"Apparently it is going to be less of a policy transition than a personnel transition," says Olga Grkavac, senior vice-president of government relations at ADAPSO, the computer software and services industry association. For example, the changeover may trigger the appointment of a new U.S. trade representative, a new assistant attorney general for antitrust, a new secretary of commerce and new members of the Federal Communications Commission.

The Bush team is likely to be a mix of holdovers and new appointees, all with strong Republican credentials, Grkavac says, although the infusion of new blood may bring some subtle changes in policy and emphasis. Computer industry lobbyists point out that the new political appointees must be "educated" about the needs of high-technology industries.

Betts is *Computerworld's* Washington, D.C., correspondent.



DIANE JAQUITH

For example, the regional Bell holding companies will need to develop ties with a new batch of administration officials in their high-powered effort to win freedom from business restrictions set down in the 1984 AT&T divestiture decree, which keeps them out of the long-distance telecommunications, electronic publishing and manufacturing businesses.

Lose-lose situation

The Bell companies would have been losers whether Bush or Michael Dukakis had won the election, because they are losing valuable allies in the outgoing Reagan administration, according to a report by George R. Dellinger, a telecommunications analyst at Washington Analysis Corp., a securities research firm in Washington, D.C.

Consequently, most of the high-tech trade associations are busy sending position papers to Bush's presidential transition

team to influence the movers and shakers in the forthcoming administration. Among the filers are the American Electronics Association, the Computer and Business Equipment Manufacturers Association (CBEMA), the Council on Competitiveness, the Computer & Communications Industry Association and the Council on Research and Technology (Coretech).

Coretech and the Council on Competitiveness, for example, are urging the new administration to appoint a presidential advisor on science and technology and improve the coordination of federal technology policies.

W. J. Sanders III, chairman and chief executive officer of Advanced Micro Devices, Inc., a Sunnyvale, Calif.-based semiconductor company, went so far as to publish a "Dear George" letter as a full-page newspaper advertisement. It appears there will be no shortage of advice on how the Bush team should han-

dle the three Ts.

Taxes. One area of concern for corporate America — including MIS managers and the computer industry — is whether a big tax hike to close the federal government's \$130 billion budget deficit is in the offing.

Higher corporate taxes could mean less money to spend on technology, a point that was underscored when the computer industry howled in protest at a proposal by presidential candidate Jesse Jackson to raise corporate taxes by \$20 billion. That really got the industry's attention.

"You can't say that technology is important for competitiveness and then just take all of the money you're supposed to invest," a CBEMA spokeswoman said at the time.

However, Bush remains adamantly opposed to big tax hikes, and Congress will find a way to sidestep the issue in 1989, analysts say. Instead of a large tax increase, L. Douglas Lee, an economist at Washington Analysis Corp., predicts that Congress and the Bush administration will hammer out a modest, \$25 billion budget package of spending cuts and revenue boosters.

"We believe that constructing a \$25 billion deficit-reduction package for the 1990 budget is a very manageable task," Lee says.

In the past, Congress has regularly produced similar packages composed of some spending restraint, some modest increases in excise taxes and optimistic economic assumptions.

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TN Knoxville	Feb 8/r
Memphis	Feb 16/r
Nashville	Jan 12/r
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COMPUTERWORLD

Whatever tax bill emerges, the high-tech industry will fight hard to add a permanent extension of the 20% tax credit for research and development expenditures, according to John L. Pickitt, president of CBEMA.

In 1988, Congress approved a one-year extension of the R&D credit, now scheduled to expire at the end of 1989. The good news is that Bush has publicly stated his support for a permanent R&D credit; the tough part is finding a way to pay for the popular tax credit, which costs the U.S. Treasury about \$705 million a year in foregone revenues.

Bush also supports cutting the capital gains tax rate to 15% on investments held for at least one year — a proposal supported by the National Venture Capital Association and the small firms in the American Electronics Association. Supporters say the tax break provides an incentive to venture capitalists to invest in new and growing high-tech firms. However, this proposal faces tough opposition from Congress.

Trade. The computer industry can expect the Bush administration's trade policy to look a lot like the Reagan administration's. During the election campaign, Bush seemed satisfied with the Reagan trade record and demonstrated the same free-trade instincts.

But Stephen D. Cohen, an international trade analyst at Washington Analysis Corp., notes that the Reagan-Bush team actually followed a "pragmatic" trade policy rather than a pure free-market policy. That is, it resisted trade barriers only when political pressures were not severe.

Cohen suggests that the Bush administration will be forced to have a slightly tougher trade stance, since it will be faced with a continuing massive trade deficit and the 1988 omnibus trade law, which mandates a more aggressive government effort to reduce or eliminate foreign barriers to U.S. exports. In fact, the Bush administration may spend most of 1989 just implementing the 1988 legislation, ADAPSO's Grkavac says.

According to a report by the U.S. Department of Commerce, the Omnibus Trade and Competitiveness Act of 1988

contains the following provisions of interest to U.S. high-tech firms seeking to boost exports:

- It gives the president authority to negotiate a multilateral trade agreement to open up foreign markets to U.S. goods and services for the next 20 years.
- It sharply reduces the burdens of national security export controls. The law focuses on restricting the export of truly

Competitiveness report card

The U.S. only gets a "C" for its efforts in the past five years to compete with foreign nations, according to 91 members of the Council on Competitiveness

Overall grade	C
Executive branch	C
Congress	C-
Business	B-
Labor	C
Higher education	C+
Elementary/secondary education	D+
State governments	C
Local governments	C-

SOURCE: COUNCIL ON COMPETITIVENESS
LOW CHART

strategic technologies to the Soviet bloc while relaxing controls on trade in the free world.

- It permits the U.S. Trade Representative to initiate trade complaints against countries that fail to provide adequate intellectual property protection for U.S. products.
- It also requires the U.S. Trade Representative to identify countries that have trade barriers affecting the telecommunications industry and requires negotiations to eliminate or reduce the barriers. If the talks fail, the president is required to take some retaliatory action.

Telecommunications. Congress has already set the stage for the two big communications battles of 1989. One controversial issue is the FCC's proposal to overhaul the way it regulates AT&T's

long-distance rates.

The proposal would replace the current system of profit ceilings with a new scheme of so-called "price caps," which place an annual ceiling on the price of long-distance services rather than regulating the company's rate of return.

Key members of Congress, not convinced of the price cap plan's benefits, have already put the FCC on notice that they want the commission to proceed very slowly. Likewise, business network managers have charged that the plan contains numerous flaws that could make users worse off than they are under the existing regulatory system.

For example, the International Communications Association and the Ad Hoc Telecommunications Users Committee argue that the baseline for the initial price caps is set too high and that the annual adjustment formula will not provide any substantial rate cuts.

The second big issue is whether the regional Bell holding companies should be freed from the business restrictions imposed by the AT&T divestiture decree. Members of both the House and Senate signaled their intent to address this issue by sponsoring "free the Bells" resolutions in 1988. Though the resolutions don't have any legal effect, they send a political message.

Clearly, 1989 will be a year of new players but no big surprises in Washington. Analysts conclude that the computer community can bet on three basic trends: modest advances toward deregulation of the telecommunications industry, coupled with lots of congressional hearings; a slightly more aggressive trade policy; and a renewed lobbying campaign to extend the R&D tax credit for high-technology industries.

In essence, that's the kind of undramatic, incremental progress that voters said they wanted when they went to the polls in November. The business community supported Bush over Dukakis partly because it did not want any dramatic change in government policies, says Ed Zschau, chairman and CEO of Centstor Corp., a computer peripherals company in Silicon Valley. •

Why things are better



James Sutter
Vice-President of IS
Rockwell International

When information technology was first introduced, many people worried about the negative impact of computers on the nature of work. These predictions have been proven wrong. Computer-based systems continue to offer the potential to enrich the content of jobs and aid in reaching high levels of quality.

Contrary to fears that were expressed in many circles, employment rose rather than declined. The redefined jobs that grew out of early automation efforts have become more essential; for example, greater consequences exist when failure occurs. Over the years, workstation penetration continued throughout U.S. industry.

Computers have profoundly affected the way we work in engineering and in factory operations. Quality has risen steadily due in large part to interactive graphics workstations in engineering and factory automation equipment in manufacturing plants.

Many specific jobs in engineering associated with checking and support services have been automated and made nearly error-free because of the built-in validations defined in software programs.

Jobs on the factory floor have been transformed from repetitive, monotonous and often dangerous tasks to ones working with sophisticated systems.

Computer-based systems in the offices have shortened the time to process transactions. Tasks previously performed in sequential fashion can now, with the proper databases and communications systems, be done in a more interactive and concurrent manner. More informed decisions are possible.

Much has been achieved through the use of information technology. Automated features that monitor everything from spelling and grammar construction to arithmetic calculations, design parameters and machine-tool performance have and will continue to assist us in becoming more productive in raising the quality of our work. •

Hot bills for '89

Aside from the broad policy issues of economic competitiveness, Washington officials will be grappling with some specific legislation of interest to MIS managers:



• Anti-virus law.

There will be pressure to amend the Computer Fraud and Abuse Act of 1986 to cover the kind of computer virus attacks that hit the Internet research network in early November. All eyes will be on the so-called Herger bill, introduced last July by U.S. Rep. Wally Herger (R-Calif.), which outlaws computer viruses and carries a penalty of up to 10 years in prison.

Buck BloomBecker, director of the National Center for Computer Crime Data in Los Angeles, says the most interesting feature of the bill is that it applies to all virus crimes affecting interstate or foreign commerce — not just federal government computers. "I suspect there will be some debate over that jurisdictional issue," he says.



• Section 1706.

This legislation concerns the controversial section of the Tax Reform Act of 1986 that requires computer consultants working for brokers to become employees unless they meet the stringent legal standards for classification as independent contractors.

Congress recently ordered the U.S. Department of the Treasury to conduct a definitive study on the issues surrounding Section 1706 and to report in September 1989. The ultimate fate of Section 1706 probably hinges on the results of that study, according to Joseph E. Collins, spokesman for the Data Processing Management Association in Park Ridge, Ill.



• Software rental.

A bill to block unauthorized rentals will be reintroduced, "and we see that going forward," ADAPSO's Olga Grkavac says.



• Government computer security. Federal MIS managers will be busy complying with the Computer Security Act of 1987, which requires detailed security plans, training programs and the identification of sensitive systems. The security plans are due Jan. 9, a year after the act became law.



• Halon regulation. MIS will be watching to see what the U.S. Environmental Protection Agency does to regulate the use of halon. Last fall, the EPA called for a complete phaseout of halon — a chemical used in data center fire-suppression equipment — because it contributes to the depletion of the Earth's protective ozone layer.



• The 11th Amendment. ADAPSO expects hearings on whether the 11th Amendment exempts universities from certain laws, such as those governing software copyrights. •

100

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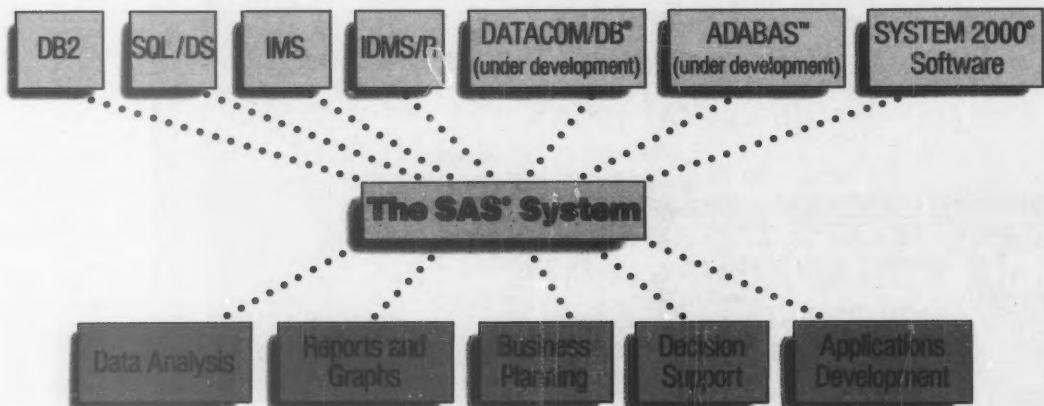
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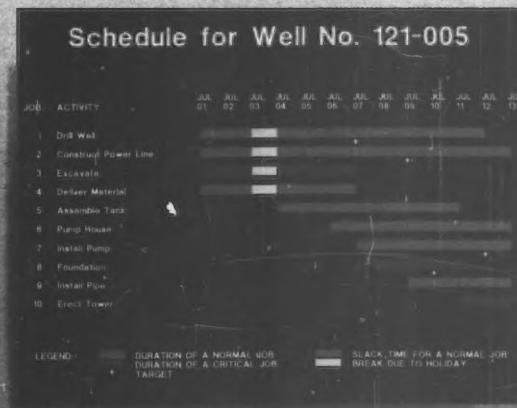
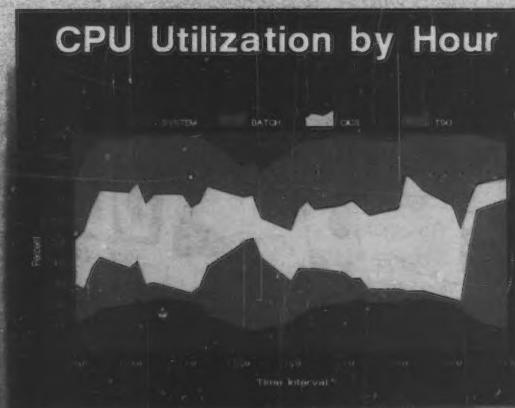
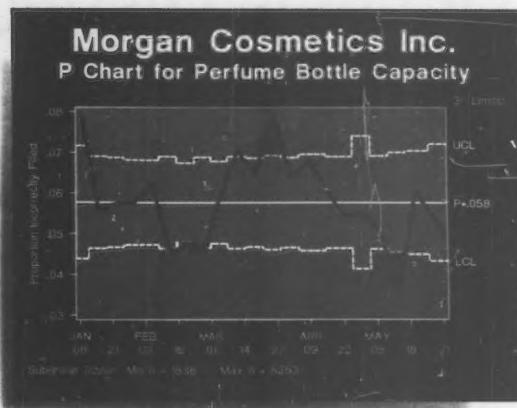
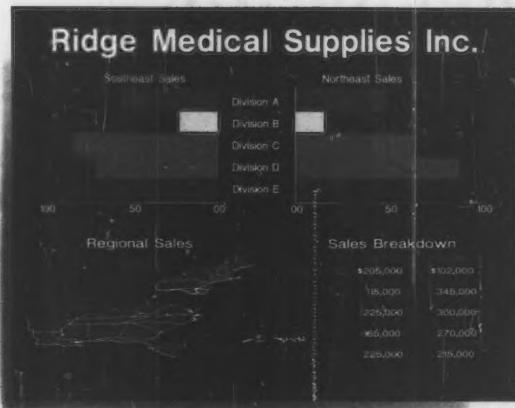
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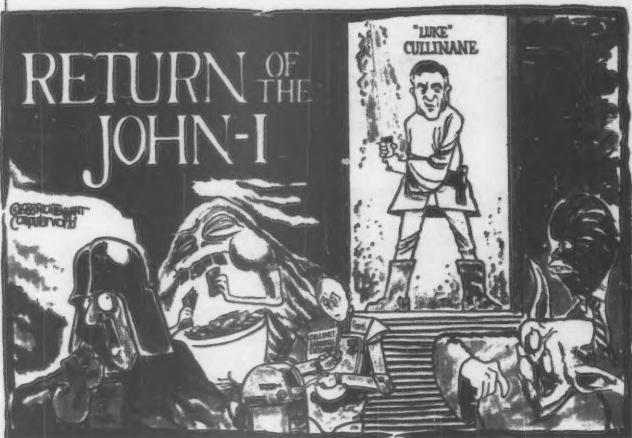


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Second annual Dubious Distinction Awards

Computerworld again tars, feathers, needles, mocks and generally giggles at some folks who richly deserve it



If history teaches us anything, it is to expect the unexpected — just ask President-elect George Bush. On his way to the Oval Office, Bush faced off with such unlikely foes as the governor of Massachusetts and a fundamentalist minister. He has named the governor of New Hampshire to run the White House. He met with Mikhail Gorbachev right after the Soviet leader announced unilateral cutbacks in his armed forces. The man who called Ronald Reagan's policies "voodoo economics" is now preserving Reagan's economic reforms.

Despite such unexpected scenarios, which have turned conventional wisdom on its head this year, we continue to expect reality to conform with our plans. The MIS community and vendors are no exceptions. In an effort to once again show how ridiculous real life can be, here are Computerworld's Dubious Distinction Awards for 1988.

If it ain't broke, don't fix it! They were the first to get it right, and when they got it wrong, they did it in a big way. "They" are American Airlines.

The "on-time machine" added a software enhancement to its Sabre system that prevented it from doing what it does best: selling lots of airplane seats.

Sabre's "yield-management system," enhanced in June, failed to show the correct number of discounted fares available for reservations last summer. The flaw cost the company an estimated \$50 million.

The software revision that wasn't. Few software revisions have been announced and not delivered as frequently as 1-2-3 Release 3.0. The most recent nondelivery of the most popular spreadsheet package ever was accompanied by a drop in Lotus' stock price. Meanwhile, top dog Jim Manzi was revealed to be the second highest paid executive in the U.S. Part of that pay came from a quick sale of Lotus stock by highly placed company executives right before they announced poor earnings. The SEC checked into the situation but so far has uncovered no wrongdoing.

If you'll just excuse me while I retire for a minute ... Founder and Chairman John

J. Cullinane ousted his hand-picked successor and resumed the chairmanship of Cullinet Software after a seven-month retirement.

It looks great on paper. Supercomputer wanna-be Evans and Sutherland Computer's President David Evans said in April there was a chance that the company's high-powered processor may not work out. It seems the promising system had been simulated, but not built — even though the company was predicting shipments by now. The glitch stemmed from the inability of chip companies to manufacture the custom silicon simulated by the firm.

My kingdom for applications! After promising the delivery of OS/2 applications in the first quarter of 1988, a group of overly ambitious vendors backed down on their commitments, leaving more than 20,000 OS/2 buyers stranded.

Rookie goes back to the bench. In July, DEC unveiled Debit/Credit benchmark results showing that its systems outperformed those of IBM and Tan-



dem. At that time, DEC said it would release a full report on the benchmarks in October; it subsequently decided to rerun the tests under an independent auditor before releasing them. Users are still waiting.

What Congress legislates, the IRS disintegrates. A well-intentioned congressional effort to clear up the controversy over when firms can hire technical service workers as independent contractors was turned into chaos by the IRS. A paragraph in the Tax Reform Act of 1986, Section 1706, has brought grief to many a contractor. Congress blindly passed the law without knowing how it would affect independent workers. The IRS further stirred debate with "private letter rulings" on individual cases. Clarity has yet to come to this situation, and the government is "studying" it further.



Dealing from more than one DEC. DEC's Database Storage Group signed an "exclusive" agreement with Relational Technology under which DEC would resell Relational's Ingres database tools. However, the arrangement did not exclude DEC from also signing a CMP agreement with Cullinet covering Cullinet's tools for RDB.

'It's my server!' No, it's my server! Ashton-Tate apparently neglected to inform strategic partner Microsoft about an agreement that was intended to allow Novell to distribute a version of the Ashton-Tate/Microsoft/Sybase SQL Server tied into Novell's Netware. Microsoft Chairman Bill Gates expressed his profound displeasure at an industry gathering shortly before a press conference that had been scheduled as the centerpiece of Novell's Networld show, causing the press conference — and the deal — to be canceled.

Still crazy after all these clones. In John Sculley's autobiography, *Odyssey*, the Apple chief wrote how the firm would be crazy to sue other firms over graphical user interface technology. In March, Apple did just that against Microsoft and Hewlett-Packard.

One too many strategic matchups? At the announcement of DEC and Ashton-Tate's joint development agreement, Ken Olsen introduced Ashton-Tate's Ed Esber as "Ed Esbie."

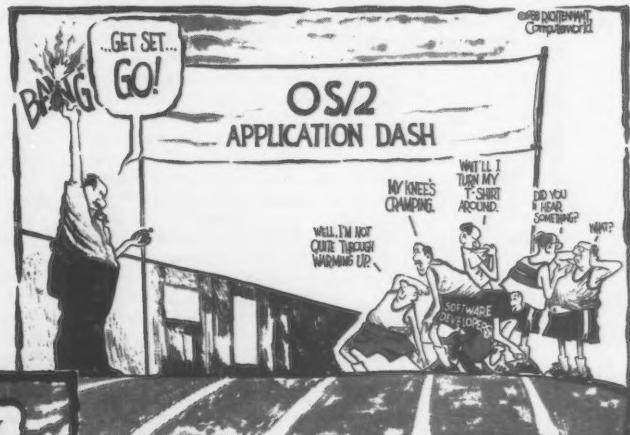
Too much of a good thing? Creator of Comdex and Interface, The Interface Group figured there was gold to be gathered after the demise of the once-humongous National Computer Conference. The group launched the MIS-oriented World Congress on Computing but killed it months after its debut. The typical audience of two dozen low-level MIS workers and foreign students at WCC sessions was far below the several

hundred high-level attendees expected.

Coulda seen it coming. Despite some observers' comments about the inevitability of the outcome, too many companies chased too few customers in the once-hot minisupercomputer market, which lead to a painful shake-out. Problems ranging from slower growth to losses to layoffs reigned at Alliant, Elxsi, Multiflow and a host of other organizations; only Convex came through fairly unscathed. Perhaps most telling was the withdrawal of traditional minicomputer power Prime from its equity stake in minisuper startup Cydrome.

Perestroika for profit. The bad news for Sapix Computer was that one of its employees was charged with giving supercomputer technology secrets to the Soviets. The good news was that the publicity generated by the arrest gave the Silicon Valley start-up more instant name recognition than Regis McKenna could have produced in a year.

Do as I say, not as I do. IBM cut itself a healthy slice of humble pie in mid-September when it tacitly conceded to have underestimated the number of users who have no burning desire to scrap DOS and follow Big Blue's parade over to the Micro Channel Architecture.



Either I buy you or I sue you. The choice is yours. What's a Dbase cloner to do? Ashton-Tate first tried to buy — and then filed suit against — Fox Software for alleged copyright infringement. At the same time, the company rewarded other Dbase cloners — it bought a mini, RAM-resident Dbase clone from Apex Software and acquired its SQL technology from Wordtech. Would-be cloners are confused. Should they plan to buy a Ferrari with the proceeds of a nice sale to Ashton-Tate or should they save up for legal expenses?



Well, what do you know — we're No. 1 again! DBMS and hardware vendors somehow exhibited an uncanny ability this year to benchmark their products against each other — and all come out on top. Oracle, DEC, IBM, Cullinet and Tandem all scored the highest marks with their own versions of Debit/Credit. Bet these folks play a mean game of solitaire. *

LETTERS TO THE EDITOR

Think business

Your article "Downsizing threatens MIS influence" [CW, Nov. 28] addresses a threat only to those who suffer from a certain myopic condition that, unfortunately, has afflicted quite a few people. The implication that the influence wielded by an MIS manager is a function of the number and size of the computers he controls is frightening indeed.

The role of MIS is that of implementing effective solutions to business challenges. If we do not consider all solutions to a given problem — even those that do not involve a computer — then we are no better than the carpenter whose only tool is a hammer. Every problem will look like a nail.

MIS professionals have got to stop being back-office "byte-heads" and start being consultants to business. If we are afraid to implement technically simpler, lower cost solutions, then we will continue to proliferate technological solutions for their own sake. Doing that will ensure that we remain in the back office as functionaries and out of the boardroom as leaders.

*Dennis L. Duffy
Senior Vice-President
Director of MIS
Burson-Marsteller
New York*

Their side of the story

Douglas Barney recently wrote a column that began, "A while back, *The Wall Street Journal* kept trying to run a story about IBM, and IBM kept making them pull it" [CW, Nov. 14]. That's ridiculous.

IBM didn't "make" me pull the story, which said that IBM was developing a personal computer that contained an Intel 80386SX chip but used an AT bus. Nobody can force the Journal to kill a story.

I pulled the story on my own halfway through a press run because an IBM spokesman told me the story was flat wrong. IBM public relations people have always been straight with me, and it seemed to be possible that the development project had been canceled after my sources got their information.

The Journal also didn't "keep trying" to run the story. I killed the story once, during the press run for a Friday paper. I checked on Friday and found that the story was indeed accurate — the IBM spokesman had been misled, had misunderstood or was playing a semantic game with me. So we ran the story in our

next paper the following Monday. If Mr. Barney had called, I'd have been happy to explain what happened.

I appreciate what Mr. Barney was trying to do to clarify confusion, but I think he wronged the Journal along the way.

*Paul B. Carroll
Reporter
The Wall Street Journal
New York*

Use the carrot, not the stick

The computer security world is inevitably put off by Morrisian escapades because of the threat posed to systems. It is not easy for us to look kindly on the benefits we reap from certain of these experiments, but I submit that we ought to attempt channeling the potentially valuable talents of the hacker subculture.

My suggestion is that the industry establish a fund to award prizes to discoverers and documenters of computer system security weaknesses. My hope is that the combination of the prize and the resulting recognition would be sufficient reward for the intellectual achievement and deter the recipient from implementing the documented threat.

I do not favor renouncing use of the stick but, as is often the case, the carrot could turn out to be an efficient first alternative.

*Thomas R. Weinberger
Manager, Planning and Security
Information Systems Division
Memorial Sloan-Kettering Cancer Center
New York*

Get it right the first time

I enjoyed reading Bob Stahl's In Depth article, "The ins and outs of software testing" [CW, Oct. 24]. I can certainly agree with his eight-point reality checklist for more efficient testing. However, I take exception to his statement: "Software's dismal reputation is largely the result of inadequate testing."

Software's dismal reputation is because of many factors like poor use of methods and tools and overconstrained schedules. Inadequate testing has little impact on software quality.

For developers to rely on testing to improve software quality is like doctors deciding to rely on better antibiotics to cure infection after operations. Joseph Lister (no relation) first described the sterile technique when performing surgery: Don't infect the patient in the first place. In 1988, we have Harlan

Mills and Victor Basili, among others, describing "clean room" software development methods.

To improve software quality, let's concentrate on not infecting our creations in the first place, not on more efficient methods of curing illnesses we have caused.

*Timothy Lister
Principal
The Atlantic Systems Guild
New York*

Make them pay

It is no public secret that some computer users, including data processing personnel, are not willing to keep their password confidential. They do not hesitate to share it with their peers and subordinates (but not with the boss, of course).

The disclosure of passwords defeats the costly security feature. But those users do not feel they need to keep their passwords secret. They think it is OK to share passwords, and it is almost impossible to change their mind.

There is a technique we can try to convince people who do not want to keep their password secret: Provide the password with the facility to access their Personal Information System (PIS).

The PIS shows such personal information of the password owner as salary, grade, appraisal history, company loans, personal account and expense reports.

The owner of the password now will hesitate to share his password. Sharing it means sharing their personal data. If they still share it, there is only one more option we can do: Take it back.

*Zamri Zaini
Dallas*

All in the head

Gopal Kapur's article in a recent Reader's Platform [CW, Dec. 5] stomps heavily on the concepts presented in an earlier article. In the process, he uses an example that hardly supports his view.

He states, "Imagine a symphony in which the individual musicians are kept ignorant of the main score and know only their individual parts — one in which the conductor commits the entire score to memory and nothing at all is written down."

The problem here is that the first part is exactly how most symphonies work: The players are only given the parts they play. One reason is that it saves a lot of money to copy only the parts that each musician requires. Another is that musicians are proud of their ability to sight-read music and to jump from one

piece to another.

In most cases, the entire concept of the playing is in the conductor's head. The score commonly does not contain detailed comments but serves as a reminder of the flow. Some conductors do not use a score.

Now we can wonder whether the rest of Kapur's self-serving comments — since he heads the Center for Project Management — are as far off base as they seem.

*Mike Firth
Dallas*

Oh no! Look out! It's Magscare!

Computer magazines love to beat the drum and ridicule vaporware. We all read with horror and dismay, over and over, how one of the big boys has again fallen short on delivery. I would like to enter a new category — Magscare. I just laid down another magazine with disgust at another story on how IBM has this monumental plot to overthrow the PC world by producing the Micro Channel Architecture.

I believe journalists are to report the news in an unbiased fashion. But it's obvious that we have a host of pundits out there who feel their mission in life is to crusade readers into computer sects. The means may in fact be destroying any enthusiasm or hope in the future of microcomputing.

*Al Perkins
Publications Specialist
Embry-Riddle Aeronautical University
Daytona Beach, Fla.*

Good to know

Regarding the column "Now you see it . . ." [CW, Nov. 21], it is nice to know that I am apparently doing it right. I have always insisted that applicants for programmer positions come back for a second interview, during which they meet and talk with as many of the programmers they will be working with as possible, even to the point of going to lunch with them at company expense.

This is to give me a chance to see what the chemistry is between the applicant and the staff. I would not hire an otherwise qualified applicant if it seemed he did not fit in well with the group.

The most surprising thing about Ms. Ruhl's article is her assertion that most managers do not routinely do this. I find this hard to believe.

*James Hursley
Programming Manager
The Columbus Dispatch
Columbus, Ohio*

FRAMEWORK

Selling IS out of house is catching on — but beware

Firms want to hoard the competitive edge

BY CLINTON WILDER

What's a wood products company doing selling high-technology services?" From a Weyerhaeuser Information Systems marketing brochure

The idea of selling software applications or high-speed data network services outside one's corporation to generate profits can have an irresistible allure, particularly when the corporate world is demanding that MIS professionals be business strategists as well as technologists.

But a successful software or services marketeer is a very different business strategist than an MIS executive who has developed and deployed a strategic information system. In the last few years, most traditional MIS organizations that have sold products outside their parent companies have focused on software or services — disaster-recovery capability, for example — that are already available in the marketplace. Few are willing to risk losing any competitive advantage gained through a strategic system by spinning that system into a marketable product.

If outside buyers "can put in a system we've developed that would give them advantage against the Weyerhaeuser company, we have to place a limit. We have to be extremely careful," says Susan Mersereau, vice-president and general manager of Weyerhaeuser Informa-

tion Systems in Tacoma, Wash.

With an increasing number of U.S. companies weighing strategic moves outside their traditional markets, the trend of MIS selling services outside parent organizations is likely to accelerate in 1989. In transaction-oriented industries like banking, large user firms such as Mellon Bank NA have sold data processing services for years. But within the past three years, key players

between MIS and internal end users is not clearly defined beforehand, for example, the jump into the computer industry can actually distance the MIS function from the corporate strategy it is trying to join.

"Selling outside services tends to detract from the main mission unless the [MIS] organization is doing an exceptional job taking care of internal customers," says Al Barnes, a Los An-

geles-based managing associate of the Index Group, Inc., an information systems consultancy in Cambridge, Mass. "Most [MIS] organizations are not well served by going outside and becoming a vendor."

Like several other firms' computer vending units, Weyerhaeuser Information Systems includes internal MIS, with service to users in Weyerhaeuser's various business units accounting for about 85% of its revenue. Mersereau, formerly the parent company's director of telecommunications, says she is well aware that Weyerhaeuser Information Systems' primary charter remains the parent company's internal needs, even if that means lost opportunities in the marketplace.

"If you really wanted to compete, you'd set up a separate commercial business," she says. "But you would lose the synergism and the resource utilization advantages."

A similar philosophy rules at Pennzoil Co.'s Strategic Information Services Co., or Stratis, formed in 1988 and

located in Houston. "Internal customers are king," says Stratis Executive Vice-President Keith Eaton, "and for the foreseeable future, it will stay that way."

Stratis grew out of Pennzoil's ambitious 1983 decision to invest \$50 million over a five-year period to revamp its MIS infrastructure — at a time when its competitors in the price-depressed oil industry were cutting IS spending. Pennzoil decided there was little incremental cost involved in going outside to sell its revamped oil and chemical industry applications and network

Wilder is Computerworld's senior editor, computer industry.



in industries like manufacturing, construction and petroleum have joined in.

There are very few established rules in the user-turns-vendor game. Of the broad spectrum of U.S. companies that are playing, no two are doing it quite the same way. If there are any guidelines, they might be these: Plan such a move carefully, start out small and go slowly.

Aside from the basic elements of learning to market and sell in an industry as competitive as any other, becoming a vendor raises major, yet often subtle, relationship issues. If the relationship

isles-based managing associate of the Index Group, Inc., an information systems consultancy in Cambridge, Mass. "Most [MIS] organizations are not well served by going outside and becoming a vendor."

Yet many noncomputer companies are finding success by selling software and services; this success cannot always be measured by revenue growth or market share. Companies that assess the impact of their outside move on their internal customers see benefits on both sides.

"If you are only operating within a corporation, you're not

based services such as electronic data interchange.

"We had already developed the software and made the investment," says Stratis President Patrick Manning. "There was very little downside risk."

Management involvement

In addition to a strong relationship with internal end users, the success of an organization's computer services business also hinges on the involvement of its senior corporate management. At Pennzoil, for example, the Stratis board of directors includes Pennzoil's general counsel and senior vice-president/controller.

"Senior management has to see themselves as owners of this business," the Index Group's Barnes says. "And you have to have a business plan. If you're just selling software outside, you're just selling — you're not a vendor, you're not really in the business."

The Bechtel Group, the San Francisco-based construction conglomerate, went through just such a thought process before it started up Bechtel Software, an independent business unit, in Acton, Mass., in 1987. Clients who used Bechtel's internally developed computer-aided engineering and project management software during a Bechtel project contract wanted to keep using — and therefore license — the software when the contract ended. In 1985, Bechtel allowed its various units to sell software that way, but senior management became concerned about the scattered approach taken to the idea of selling software.

"They felt Bechtel should either be in the software business or not do it at all," says Bechtel Software President John Lucas. "The way we were selling it was not a good way to protect our reputation as a company. We weren't set up to service the customer over the long haul. There weren't any clear guidelines for licensing, development and support issues."

As might be expected from its location — it is 3,000 miles from Bechtel headquarters — Bechtel Software is completely separate from Bechtel's internal IS organization. Lucas says the subsidiary maintains close ties with the software development teams within its parent company's MIS, but as of now, with about 40 customers, Bechtel Software has plenty to choose from among Bechtel's 800 proprietary applications.

"We're not trying to sell all the software Bechtel has ever developed," Lucas says. "We focus on those with commercial appeal."

Another advocate of the

arm's-length approach between MIS and software selling is an early pioneer among computer users-turned-vendors, Westinghouse Electric Corp.

In 1969, the Pittsburgh manufacturer, having developed several IBM DOS/VSE utilities for its own MIS needs, saw a market for those utilities outside the company. Thus was born Westinghouse's Management Systems Software subsidiary, making it not only one of the first non-computer companies to sell software, but one of the first independent systems software vendors, period.

One way a firm's internal users can help the vendor unit is to act as sales references. Such a relationship exists at Agway Data Services, Inc. (ADS), the computer services unit formed

SENIOR management has to see themselves as owners of this business."

AL BARNES
INDEX GROUP

by the Syracuse, N.Y.-based agricultural products giant in 1987.

Like Weyerhaeuser Information Systems and Pennzoil's Stratis, ADS grew out of Agway MIS, and most of its sales come from Agway business units. ADS calls on those same units to be sales references when it seeks outside customers for its data communications, remote processing, disaster recovery and other services.

"The first thing that you've got to do is gain respect," says ADS President Dennis LaHood. "If you're not providing quality services to [your own] business, you're not going to be able to put forward the idea that you can provide those services to others."

To LaHood, the biggest hurdle in becoming an outside supplier is learning to sell. "The idea of marketing and sales is new to a traditional IS organization," he says. "But once you get past the point where a customer has developed an interest in ADS' capabilities, everything else is similar" to serving Agway business units.

But there is a potential dilem-

ma with a noncomputer company selling software and services to its competitors: The buyer is ostensibly purchasing the computer technology to enhance his own competitive advantage.

The solution, companies say, is to assess whether competing products or services already exist in the marketplace. "With a service like disaster recovery, if customers don't buy from us, they go to a competitor," says Weyerhaeuser Information Systems' Mersereau. "The same is true if you're competing with off-the-shelf software."

Pennzoil's Stratis sticks to generic software in oil production, oil royalty revenue reporting and basic financial applications. "Ninety-nine percent of the software we sell is available out there in the marketplace, so there's no conflict," Manning says. Even if the software seller solves this competitive dilemma, there remains the possibility that internal and external customers' future needs may diverge, particularly in future enhancements and upgrades.

"There can be enough differences among your customers that you'll end up with lots of versions of the same application, and that can cause you to lose control of the base system," Barnes says. "If you're selling outside, the management process of enhancing a system becomes much more complex."

All these issues — and the overriding issue of the implications for a user organization's corporate mission of making the computer-industry-vendor plunge — should be assessed carefully beforehand by both MIS and top corporate executives. Some companies have hired outside consultants for help, as Agway did in 1985 when it contracted John Diebold to study its MIS strengths and market opportunities.

Not only is the strategic planning process of paramount importance in considering the question of vending MIS products and services, but the decision process itself can be invaluable — even if the answer is no. An MIS department's examination of whether it should go into business can be the best way to redefine its role in its firm's business.

"Top management has always had questions about IS; this is the opportunity to talk their language," Barnes comments. "Whether you sell outside or not may depend on your capabilities vis-a-vis your competition, but there's a benefit in thinking about it." *

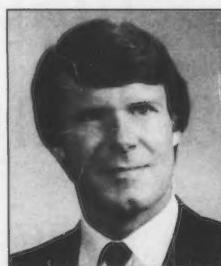


Agway's
LaHood



Weyerhaeuser's
Mersereau

Revolutionizing the working environment



Thomas Gerrity
Chairman and CEO
Index Group, Inc.

able the company to provide better service because the system keeps historical service data on each elevator in use (effectiveness) and provide an ongoing diagnosis of elevators in use for preventive maintenance (transformation) and for locking in the service call.

One of the major transformational changes in business today is toward cross-functional integration and creating the flexible organization. In this area, communications and networking technologies are causing powerful changes in the way people communicate, work together on tasks and make decisions.

In an evolutionary way, technology is enabling people from a variety of business functions — marketing, sales, purchasing, manufacturing, administration, research and development and so on — to work much closer together in the provision of a product or service. Historically, these departments, and the people who worked in them, were segmented from others within the firm.

Tech breakdown

Today, however, communications and networking technology (and computers) are breaking down those barriers to interpersonal communication. The technology is making it far easier for various corporate constituencies to exchange information and work together, though not necessarily in close proximity, on projects.

Because the marketplace is becoming only more competitive and changing more rapidly, companies, more than ever, are looking to derive transformational benefits from information technology. Many of those involve using communications technology that facilitates the actions of people across functions to improve service, speed product development and share valuable information about customers.

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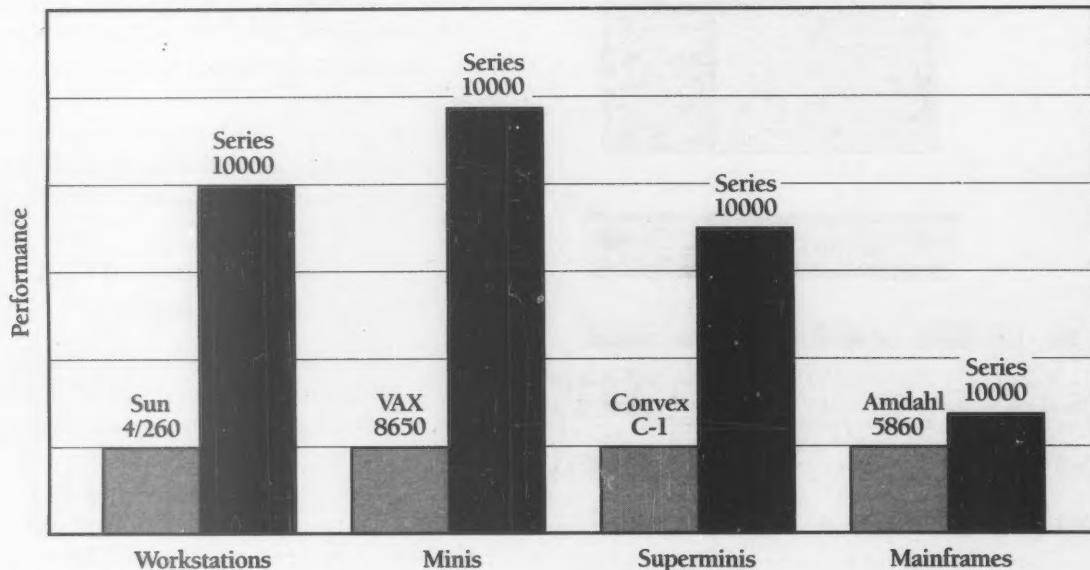
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Downsizing an opportunity and a risk

LAN-based solutions may easily overtake centralized minis by 1992

BY MICHAEL ALEXANDER

Corporate America is in the midst of a battle to become lean and mean, even while many companies are gulping down others like fish in a feeding frenzy. But the way many corporations are trimming the fat is not by divesting unprofitable divisions but by downsizing their MIS operations.

"Basically, downsizing is the idea of taking systems that may have been on a mainframe or minicomputer, perhaps with complicated connections into other systems, and surgically removing them and placing them on personal computers," explains Theodore Klein, president and founder of Boston Systems Group, a consulting and systems development firm headquartered in Boston. "It could also mean shutting off the lights in the data processing center, disassembling [the center] and dispersing it throughout the company."

Klein estimates that 20% to 25% of Fortune 1,000 companies will be downsizing their information technology systems in 1989, and 40% to 50% of those companies will be downsizing their systems the following year. He believes that the downsizing process will be completed in the mid-1990s, when virtually all of the top corporations in the nation will have decentralized at least a portion of their computer operations.

Downsizing from mainframes to micros on local-area networks is reshaping the mini-computer industry, says The Sierra Group, Inc., a market research firm based in Tempe, Ariz. In 1988, the group surveyed more than 2,000 companies and found that 30% of them are using PC networking technologies, up from 24% in 1987.

Based on current growth rates, LAN-based solutions may easily overtake centralized departmental minis by 1992; by 1995, networked topologies will represent the larger share of installations, The Sierra Group forecasts.

There are at least two fundamental reasons behind this rapid adoption of downsized systems. The first is that the price/performance ratio of personal computers is improving virtually by the nanosecond, leading some analysts to predict that as much as 80% of corporate computing power will be on



ANTHONY RUSSO

desktop systems by the mid-1990s.

In only a few years, it will not be uncommon for many white-collar workers to have mainframe computing power on their desktops, says Don Tapscott, an expert on office automation and end-user computing for the DMR Group, Inc., a management consulting firm with offices throughout North America.

With cheaper and more powerful desktop computers will also come machines and multimedia interfaces that are more "people-literate" than the other way around, Tapscott points out.

The end-user revolution

Perhaps the most potent force fueling the downsizing engine is the rise in end-user computing. Consider that a majority of white-collar workers will already have had 10 to 15 years of experience working with personal computers by the mid-1990s. These same workers have moved from experimenting with PC technology to applying it skillfully in ways that simply were not thought of only a few years ago.

Indeed, in many corporations, end users have detoured around the applications backlog in many MIS shops and are actively developing sophisticated applications on PCs.

"In the old days, things were expensive and expertise was thin, so it made sense to centralize and take advantage of the economies of scale," Klein says. "But companies are looking at downsizing more, now that

PCs are so widespread and end users have built up their computer expertise."

Once end-user computing has taken hold in a corporation, senior managers begin thinking more seriously about downsizing, he says.

"Senior managers often start looking at downsizing as a way to cut bloated bureaucracies, which are often in MIS departments," Klein says. "In other cases, it starts growing out of end-user or departmental expertise. End users begin rebelling against paying exorbitant mainframe charges, and there is a bottom-up swell that leads to change."

"Mainframes are expensive, and the ongoing costs are pretty hefty — that's what typically gets information systems managers thinking about downsizing," says Randy Gottwaldt, who manages information systems at Imprimis Technology, a Minneapolis-based disk drive manufacturer. "Also, if you have a lot of stand-alone PCs scattered around, management starts looking for ways to make better use of them."

Downsizing can be of strategic importance to a company, perhaps to enhance its competitive edge, Gottwaldt says: "For us, that was a significant consideration. Depending upon your product, you may need to spread the costs around quite a bit, especially in a high-volume low-margin business like this one. The savings of downsizing are fantastic."

Alexander is a Computerworld senior editor, microcomputing.

"Many businesses want to do something radical because of a change in the business climate, say, when they go from facing competition on a domestic level to competition on an international level," he adds. "That creates a lot of pressure to succeed, and downsizing can help."

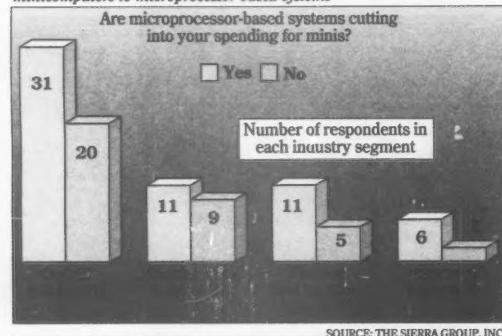
Imprimis Technology, which is wholly owned by Control Data Corp., decentralized a manufacturing application on the mainframe to a local-area network, Gottwaldt recalls. The project was started three years ago.

A successful transition requires the enthusiastic endorsement of upper management, he says: "They have to be visible to end users. Their having a good attitude about the change also helps because it filters down through the ranks."

Information services manager

New loyalties

Better PC price/performance and end-user demand were cited by MIS executives surveyed as the forces behind their diversion of funds from minicomputers to microprocessor-based systems



ers who have successfully downsized cite numerous benefits, not the least of which are the potentially huge cost savings and added flexibility that comes from putting PCs instead of terminals on desk tops.

"We spent a bit less than \$100,000 to buy 75 personal computers," said one IS manager who asked not to be identified. "That included everything — cables, network cards, software and several other things. That's about what we were spending per year in mainframe fees alone."

Cost-cutting the key

The primary consideration was the cost savings, concurs Roger Goss, coordinator of system interface at Eastman Kodak Co. in Rochester, N.Y. He recently completed a downsizing operation that replaced a mainframe publishing system with a local-area network of IBM Personal Computer ATs and Apple Computer, Inc. Macintosh SEs in the photographics products group publication division.

"We eliminated an annual fee and used the money to buy new computers and get new technology in the process," he says. "The price of the whole network, including hardware and

software, was about equal to the cost of one year's mainframe fee."

A second — though equally critical — consideration was that the previous system, used to publish manuals and documentation, was "not friendly to someone who needs to create a lot of words," Goss says. "It used proprietary software, and we had no flexibility. Now our systems come with whatever software we want, and if we're not happy, we can switch."

The network works like a charm, day in and day out, Goss says. "The only problem came when we were upgrading the network software, but even then, during the time that the network was down, people were still working," he says. "The IBM PC AT users could not do any printing, but they knew that

on MIS resources.

"Our biggest mistake was that we didn't follow through properly on restructuring," says Gary Biddle, corporate vice-president of management information at American Standard, Inc. in New York. It cannot be assumed that systems become simpler when they get smaller, he warns.

Don't forget applications

"If you are going to downsize, you can't forget to downsize the applications as well," Biddle says. "In one instance, we had a system supporting 14 levels of management, where really there should only have been five. There is more to it than just identifying a few flashy applications to downsize."

Downsizing is not without ramifications for the data center in ways that may be unexpected by many IS managers. The influence that IS holds in the corporation disperses as rapidly and as widely as the computer systems they have been charged to decentralize.

"The changing information economics that will put 10 MIPS on a desktop will mean there will no longer be need for a central computing facility," Tapscott says.

"The organizational structure will change," Klein adds. "Senior management will need to cope with such issues as deciding to whom the company's MIS professionals will report. Will they report to a CIO or to the department head where the network is located, for example?"

With the downsizing of computer systems could conceivably come a downsizing of the data center, Tapscott explains. In the extreme point of view, there may no longer be any need for a data center.

There is certainly a relationship between the two — downsizing systems and downsizing the data center — but the issue is one of finding a balance between dispersing the technology throughout the organization and keeping the data center, Klein says.

One of the key roles of the data center will be to ensure connectivity and to build the platforms on which these dispersed systems will sit, the analysts agree. MIS will control and manage the connectivity of the company's networks and set guidelines and methodology for using the network.

"The analogy that I use is as follows: When the first automobiles were introduced, you had to be a big strong hefty man with a knowledge of mechanics to drive one, so there weren't many on the road," Klein says. "Now, anybody can do it. The MIS department will be needed to lay down the roads, put up the signs and even put in a police unit. But they won't be needed to build the cars any more."

Discovering tools for information management



Charles Moran
Senior Vice-President
and CIO
Sears, Roebuck and Co.

store, retrieve and manipulate manually. Internally, our people are now receiving many reports on-line. The reports are available for viewing moments after they are generated.

We are also starting to experiment with image-management systems, which can capture many images such as graphics in addition to text. We believe these systems will become even more important to us in the future as their prices come down and their capabilities improve.

The vast amount of information we collect is being stored in subject area databases, most of them relational. This storage allows us to manage the information independent from applications to assure that it is consistent in meaning and structure and can be shared across the firm.

In addition to stand-alone processing, end-user computing tools are already providing our business users with access to these databases and, thus, more flexibility and control of their information systems needs. They can readily view, manipulate and print the information they desire. They can download information from the mainframe databases to their PCs for local processing in various formats such as spreadsheets.

All managers are now responsible for directing systems development just as they direct the other product, service and cost aspects of their businesses. They can no longer ignore the use of information technology; it is now part of their job rather than strictly a responsibility of the MIS organization.

Information technology has become a strategic resource on a par with people and capital. It is not only a means to reduce cost; it can also be thought of as an investment to create future increased revenues as well. Just as business goals drive the development and use of information technology, imaginative use of information technology can create business opportunities.

Our challenge in the future will be to keep abreast of the rapidly changing technical environments so that we will be in a better position to look for strategic use of information technology. Our work environment will certainly continue to change as a result. •



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- 31. Dir. Mgr., Suprv. of Programming
- 32. Programmer, Methods Analyst
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Integrated net management: a Pandora's box of choices

The vision of mixed environments often turns into a manager's horror

BY PATRICIA KEEFE

The current state of integrated network management brings to mind the rock 'n' roll lament that "you can't always get what you want." But what really kills today's frustrated network managers is that, try as they might, sometimes they still can't get what they need. And in a way, they have no one to blame but themselves.

In their rush to get out from under the tyranny of single-vendor solutions, users are discovering that mixed standards and multi-vendor environments have created a Pandora's box of network management nightmares. In short, you can't have your cake and eat it too — at least not today.

"I talk to two or three users a day who are screaming their heads off over this. They are sick of having a bunch of tools that don't jell," says Jeremy Frank, program director at the Gartner Group, Inc., a Stamford, Conn.-based market research firm.

What many users say they want, what some industry pundits say is coming and what vendors swear they will provide — someday — is an integrated, comprehensive centralized network management package.

User pressure has succeeded in forcing vendors to at least develop and publish blueprints for network management systems. "Users have made network management a prerequisite for consideration in almost every [request for proposals]," says Jeffrey Kaplan, director of network and professional services for The Ledgeray Group, Inc., a Lexington, Mass.-based consulting firm.

But the resulting architec-

tures have amounted to just so much paper and ink. "There's been no real progress this year. You can't buy any of this stuff, can you?" asks Frank Dzubeck, president of Communications Network Architects, Inc. in Washington, D.C.

So the vast majority of users such as Dennis Turek, a software analyst with Anheuser-Busch Companies, Inc. in St. Louis, are forced to continue to resort to "roll-your-own" network management. "Users absolutely have no choice," Frank claims.

Fortune 1,000 data communications managers surveyed earlier this year by International Data Corp. (IDC) in Framingham, Mass., revealed that 26% — the highest percentage responding — plan to develop their own network management systems.

"The smart people have to fashion their own [management system]; the people who wait for one to come by will fall by the

wayside," predicts American Cyanamid Co.'s Joseph Kascik, a manager of network planning for the Clifton, N.J.-based company, which has a worldwide virtual integrated voice/data network.

Pulling in the reins

It is ironic that in this age of open network hype, users now find that it behooves them to begin backing away somewhat from their eager forays into multivendor connectivity.

Of course, no one is proposing a return to proprietary vendor systems. But where users are already grappling with long-term network strategies and standards, it is easy enough for some MIS departments to begin pulling in the reins on diverse network implementations. The goal is to winnow a wealth of competing networks down to two or three manageable systems.

"There's a strategic direction here to move three networks into one," admits Ron Robeck, manager of technical services at Affiliated Bank Services in Thor-

ton, Colo. Affiliated has standardized on one network management package but uses three different networks mostly because of the requirements of different hardware.

Anheuser-Busch runs two networks, one from IBM and one from Prime Computer, Inc. "They are pretty separate right now, but we're looking at how to tie them together," says Turek, who adds that his department is looking hard at LU6.2. Each network maintains a database that must be kept in synchronization with the other.

Turek notes that it would be a lot easier to run one database on one network.

After consolidating networks, the next step for users is to select a network management approach. Most of what is out on the market today seems to feature compatibility with one of two adversarial camps: IBM's host-based Netview management system and the Open Systems Interconnect (OSI) network management standard, CMIS/P.

Lacking one be-all and end-all management system, users are further faced with dividing their choices into one of two approaches: a single-vendor solution or a mix of network management tools that may or may not interoperate.

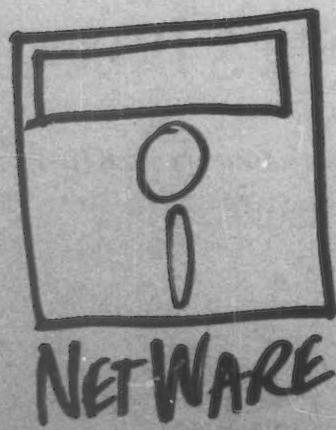
Users have to be careful to weigh short-term goals against long-term needs. The wrong technology decision could boomerang painfully at some future date.

"We try to purchase management equipment with an eye toward interacting with the systems that exists and with what we know we'll have to acquire," says Jeff Harris, director of planning and technology for Mattel, Inc. in Hawthorne, Calif. Mattel is in the midst of revamping a worldwide "kludged" network that had no real network management in an effort to integrate voice, data, facsimile and telex.

The first thing users see when they begin their quest for



Keefe is a Computerworld senior editor, networking.



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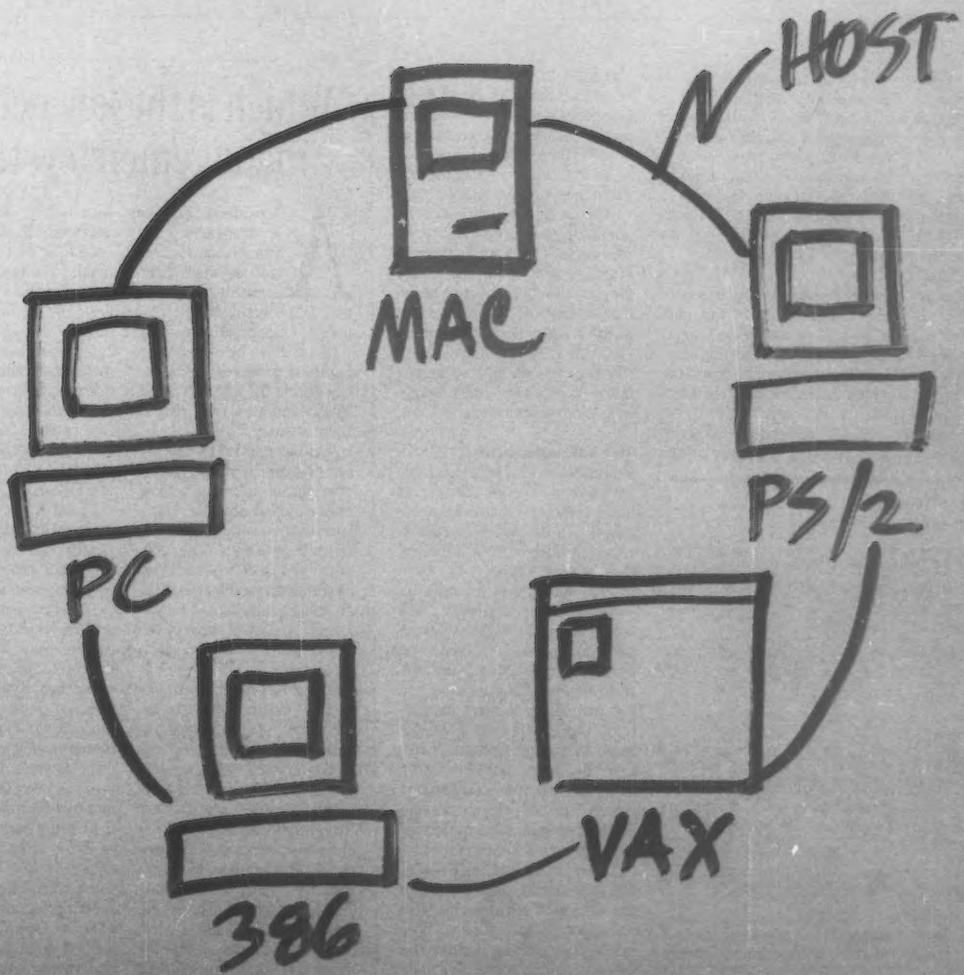
While this variety of solutions makes it easy for users to meet their needs, it presents some problems. Like sharing information between incompatible systems. The kinds of problems facing more and more companies as their information systems grow and diversify.

Novell means freedom. Fortunately,

you can solve those problems by making one simple choice: Novell. Novell's NetWare® operating system software supports a myriad of computing environments.

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For network solutions,
you should be seeing red.

network management is a veritable sea of choices bobbing with different network platforms, all festooned with "open interface" banners.

According to an April survey by Forrester Research, Inc. in Cambridge, Mass., users are targeting their dollars at IBM's Netview, AT&T's Unified Network Management Architecture, OSI and Digital Equipment Corp.'s Enterprise Management Architecture (EMA). Even so, the market is so fragmented — and clearly still up for grabs — that the leading segment in the survey was the "other" category, which garnered the largest purchasing share, 37%.

When that happens, I'll have to get real smart, real fast."

About 50% of the IDC survey respondents said they currently use from one to three network management systems. Roughly 30% use between four and six systems; another 2% use more than six; and about 10% use nothing at all.

Interconnection futures

Many users answer the challenges of interconnection or interoperability by resorting to re-entering a printout from one system on another system's console.

In lieu of concrete offerings from vendors, users are adding

Fitting systems to needs

A checklist for maximizing network performance

- Assess the entire network from a macro perspective
- Define each network component in terms of its level of network management and control; work out how the network can be managed from a central point of control
- Calculate the cost of each element and decide how long any one can remain unproductive before it starts costing the company
- Review line costs and equipment placement to determine whether reconfiguration can reduce lines or take better advantage of existing lines
- Review current applications to see if existing equipment should be replaced by equipment more appropriate for the application
- Review current network management and control offerings to determine whether the existing equipment can be upgraded
- Submit several requests for proposals to network equipment suppliers; include a separate section devoted to available network management and control functions to allow cost comparison
- Perform a cost analysis of any proposed equipment additions; plan for growth by forecasting changing network requirements
- Take a phased approach to minimize cost and get the best network performance

SOURCE: INFOTRON SYSTEMS CORP.
C.W.CHART

While they wait for vendors to flesh out their strategies and support for multiple environments, many users are taking a deep breath, crossing their fingers and plunging forward into homegrown solutions.

One approach calls for selecting a few areas to monitor — for example, session management, physical-layer management and packet-switch nodes. A mix of network management systems usually does the job, but more often than not, the systems are completely separate.

"From a network control perspective, we basically are going for the best equipment that we can find for the particular function, but it has to interoperate with what we've got," Harris says. His IBM Systems Network Architecture network is standardizing on IBM's Netview, with a Datapoint Corp. server functioning as the gateway to all non-SNA systems.

"We've made some pretty cavalier decisions in terms of moving forward," he points out. "I'm afraid that one of these days it will turn out that one of our primary [business partners] has a whole office filled with Wang or something, and I'll go 'Oops!'

some elegance to the "swivel-chair" approach, says Marvin Chartoff, an analyst with Ernst & Whinney in Fairfax, Va. In other words, move all the consoles for the different systems together, allow them to dump data into the same printer and start gearing up for automated operations.

WHILE THEY WAIT for vendors to flesh out their strategies, many users are taking a deep breath, crossing their fingers and plunging forward into homegrown solutions.

A number of vendors are taking steps to provide for interconnection, but again, they're talking futures. For example, Hewlett-Packard Co. and AT&T are publishing the specifications to their management architectures. IBM released the specs for Netview/PC to third parties, and OSI cheerleader DEC indicated it may provide specs to its recently announced EMA sometime next year.

All these companies have

promised to migrate their systems to the OSI Network Management standard — once it becomes finalized, which may be as much as three to four years away — or to at least support the OSI communications interface.

Yet even OSI provides no guarantee of interoperability. As users of CCITT X.400 gateways are finding to their increasing dismay, just because two products comply with the standard doesn't mean they can talk to each other. It also means users run the risk of getting locked into proprietary implementations of these standards.

The solo approach

The alternative approach is to go with a single-vendor solution. "I believe the one-vendor philosophy is a little easier to coordinate," Affiliated Bank Services' Robeks says.

But this approach is not always the most realistic one. "It's true that staying with one homogeneous approach is easier on development overhead and system administration, but given the real world, in most installations there is a real need for more interoperability," says Clare Fleig, director of research at International Technology Group. She sees the single-vendor approach as more suited for larger, terminal-based systems.

Users in this camp risk potential lock-in and commitment of the future of their network to one vendor, Chartoff says. "You can also eventually restrict the types of applications that you support," he adds.

Actually, most network management systems combine vendor-supplied network hardware and a mix of third-party packages and internally developed applications and systems.

For example, the New York-based Financial Industry Standards Organization (FISO), a consortium of some 20 financial services companies that are trying to develop a common communications standard for their industry, is planning to use a mix of OSI and proprietary networking solutions.

But some users such as Cyanamid's Kascik view standards with considerable suspicion. "I'm not waiting for OSI," he maintains. "Standards would be nice, but vendors won't

allow real good integration unless you are willing to write hooks into their systems."

Regardless of which way a user turns, it is imperative that they start moving now, Frank says, warning, "If you don't start today, you won't have a prayer. The average 3090 generates 1,000 messages per second. The average network control operator can read one per second and act on one every two seconds. Consider that CPU activity is

Which is the key network management system?

Abewildering array of architectures are vying to be the central network management system that will control and monitor users' enterprise networks. Vendors have been announcing these products at a steady clip during the last two years. The bad news is that most of them are pure vapor.

On the upside, the suppliers of many of these so-far-transparent offerings plan to either publish their technical specifications or at least open up their systems to other vendors' products via an Open Systems Interconnect (OSI)-compliant interface. The following is a list of some of the key network management architectures:

• DEC's Network Enterprise Management Program, announced in September 1988, reportedly will provide users with a single, comprehensive solution to managing multivendor, geographically dispersed, enterprise-wide environments. The Enterprise Management Architecture is said to provide a foundation for the integration of OSI standards.

• AT&T's Unified Network Management Architecture, a three-tier blueprint that reportedly will let users manage nine areas, including fault isolation, performance, security and integrated control. It was announced in September 1987.

• Cincom Systems, Inc.'s Netmaster is viewed as a modular clone of Netview, although users and some analysts maintain it is easier to use, has more features and is more easily tailored to a particular network's needs. Introduced in April 1984, it did not really take off until 1986 when IBM entered the market with Netview.

There are at least 33 members, including AT&T, Hewlett-Packard Co. and Northern Telecom, Inc., IBM and Digital Equipment Corp. do not participate.

• IBM's Netview, a host-based network management umbrella for a range of Systems Network Architecture monitor and control tools. IBM has said it will support an interface to OSI. Netview/PC is the mechanism by which IBM supports non-SNA net-

PATRICIA KEEFE

supposed to go up 12% a year. So if you think things are out of hand now, in a couple of years it will be worse."

Users can begin to lay the foundation for network management even if they are undecided about which direction to take, Gartner's Frank says. "You have to realize that all network management decisions today are tactical — the strategic stuff is five years out."

He advocates organizing "tedious, low-level, time-consuming tasks," such as the following:

- Combining databases, or at least making multiple databases appear as one entity.
- Starting now to build a pool of network management specialists and cross-training at every opportunity.

- Knowing what you have,

where it is and what you need.

Moreover, users should determine what they really need to manage their networks. "Vendors can only provide a reasonable solution to the extent that they get reasonably stated problems," notes Thomas Nolle, president of Haddonfield, N.J.-based CIMI Corp.

Regardless of the path that they take, users need to make certain that their chosen management strategy will help them control their networks rather than give vendors a way to control the account.

Advise Nolle: "Select the network management system that seems like a fit to your problems, even if it's not integrated. It's much better for you than one that is beautifully integrated but does not meet your needs."

CIOs' lives are turned topsy-turvy topsy-turvy are turned CIOs' lives



PETER KUPER

Turnover rate accelerates as the title seeks definition

BY JAMES CONNOLLY

More than a few eyebrows were raised — and, presumably, more than a few resumes were checked — last spring when a survey of chief information officers revealed that more than one-third of their predecessors had been fired or demoted from their jobs.

That survey, by Touche Ross & Co., might help CIOs argue for hazardous duty pay. The researchers uncovered an annual CIO turnover rate of 17% leading up to 1988 and other signs indicating that "CIO job security" is a contradiction in terms. Several observers guess that the 1988 rate will double that figure.

CIOs — whether they possess the formal title and act as corporate information czars or merely rank as top computer executives — are changing jobs in an atmosphere of frustration and controversy. They are being forced into the streets by dis-

gruntled chief executives and corporate mergers, and they are jumping to grab jobs that are new opportunities for them and bad memories for their predecessors.

The list of well-known top MIS executives on the move grew throughout 1988. Pillsbury Co.'s John Hammitt jumped to United Technologies Corp. and was replaced by Carl Wilson. The Travelers Co.'s Joseph Brophy took a job in the company's employee benefits group and was replaced by Lawrence Bacon. John Hancock Mutual Life Insurance Co.'s Edward Boudreau was promoted to president of a company subsidiary. Sun Co.'s Dudley Cooke took early retirement when the company reorganized.

Other ranking MIS managers left the business for professions ranging from the ministry to podiatry. James Kubeck, president of Whiting, Ind.-based management consulting firm K4 Enterprises, estimates that the number of CIOs seeking his help in outplacement counseling doubled in 1988 over 1987.

Is the turnover madness abating? "No," say observers, "It

will get even worse."

"The CIOs are asking, 'Who am I, and why am I going through this tremendous frustration and discombobulation professionally?'" Kubeck says.

"The phenomenon is partly due to the greater visibility of the position. The CIOs are more visible because they are closer to the top of the organization," notes Michael Simmons, a Bank of America executive vice-president.

Holding steady

Simmons himself is being tossed about in the turnover storm. He moved up a career ladder through mid-size financial institutions to Fidelity Investments subsidiary Fidelity Systems Co., where he took over the role of CIO in 1984.

But a disagreement with his company president — Simmons arguing that Fidelity should stay with a centralized strategy for the time being rather than move immediately toward decentralization — led to Simmons' resignation and eventual move to Bank of America.

Even at that bank there was

per ended a short tenure by returning to American Airlines and being replaced by former Seafirst Corp. executive Louis Mertes. Mertes then left the top Bank of America IS job in October 1987, due at least in part to the failure of a costly, long-term pension management system, which he inherited. Simmons then became Bank of America's third CIO in three years.

Failing to meet expectations is one of the key causes of CIO turnover, says Zale Corp. Vice-President for MIS David Karney. Karney, who until Nov. 1 was the top computer executive at another Dallas-area retailer, Southland Corp., notes, "I've seen various statistics that say a senior data processing person in any major organization has a three- to five-year tenure on average. I guess I am fairly typical, if that is the case."

He changed jobs after five years at Southland because of the career challenges that a specialty retailer such as Zale offered.

"It's easy for a chief executive officer to think that someone can come in and make sweeping changes in the sys-

Connolly is *Computerworld's* senior editor, management.

tems organization, but if the mind-set of the company is not ready to change, the information executive can't really pull off the changes that have to be made," says Karney, who notes that CIOs may possess their own misunderstandings of what they can accomplish. He urges that CIOs exercise patience as they learn their business.

Many CIOs — such as The Travelers' Brophy — have worked 25 years or more in the same field and are seeking a change of environment, Simmons says.

He also notes that the top MIS post is stressful to start with and is made more so by arguments about corporate strategy, such as those relating to decentralization.

"Centralization vs. decentralization is purported to be the crux of the whole argument," Simmons explains. "But the point is that it doesn't matter whether you centralize or decentralize, as long as it works well for your own data processing organization and your own company.... They [CIOs, CEOs and users] are arguing about the chipped paint on the deck while the boat is sinking."

Simmons advises that the two best ways for CIOs or CIOs-to-be to avoid becoming a turnover statistic are to learn as much as they can about their company's business and to stop talking in MIS dialects to their peers outside MIS.

Yet while the common advice to CIOs is to get more involved in general business management, one management consultant says a leading cause of turnover in the future will be CIOs who understand business but have drifted away from technology.

Bruce Rogow, executive vice-president for worldwide analytical resources at The Gartner Group, Inc., listed four causes for what he perceives as a doubling in the CIO turnover rate in 1988. The first three causes were similar to those cited by others in the industry:

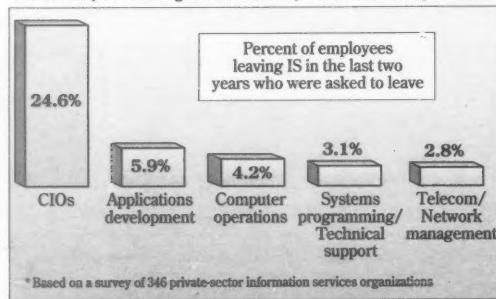
- CIOs, whether good or bad at their job, being caught in a numbers game as the merger of two firms leaves one position.

- "Mediocre to good CIOs staying one step ahead of the posse" by jumping to new jobs before they can be fired.

- Senior management becoming dissatisfied with a CIO when even a capable CIO cannot adapt the IS strategy as the company

Pink-slipped

*One-quarter of all CIOs departing from companies do so involuntarily, a rate at least five times higher than other information services personnel**



SOURCE: TOUCHE ROSS & CO.
CW CHART

changes rapidly.

Rogow's fourth cause sets him apart from other observers: "The one I think is going to create havoc in the next few years is that most CIOs are not prepared to deal with what is happening in technology. They have taken the 'T' out of IT — information technology.... You can't forget that you are still the chief technology officer."

He says too many CIOs focus on building strategic systems of the type made famous by American Airlines and American

Hospital Supply Corp. while ignoring the need to recognize which technologies, which products and which vendors can fit together to help the CIO's company. Rogow cites as an example the rapid changes in database technology and notes that a CIO must understand the differences among varied offerings and how those new platforms differ from what MIS used for over a decade.

The man generally credited with originating the term "CIO," William Synott, director of the Banking Division of the Nolan Norton Institute, says that turnover will continue. Synott notes that the "old era" of DP was stable and that managers felt safe as long as they provided the needed services and contained costs by maintaining economies of scale. MIS is moving away from that backshop environment, Synott says, and some managers are unprepared for the new world.

Unlike Rogow, Synott ex-

pects more of the positions to be filled by general managers — executives who rose through the corporate ranks in non-MIS positions such as finance and marketing.

"When that occurs, a lot of MIS managers who were passed over feel usurped and start leaving," Synott says, adding that other CIOs or potential CIOs quit when they see their empires diminished by decentralization.

The CIO who may become CEO is unlikely to be one who spent a career in MIS, he says. The former CIOs who became CEOs, such as John Reed of Citicorp and Robert Crandall of American Airlines parent AMR Corp., spent most of their careers in non-MIS positions.

Synott, like many other consultants and CIOs, advises those climbing the IS ladder to step out of IS to get better business experience.

Harold Cypress, western practice leader for information technology at Arthur D. Little, Inc. in Los Angeles, says that a general business background helps a CIO candidate understand where the company is heading.

"Most of the CIOs I know spend as much time worrying about how things are going to look in the future and what the business' needs will be in terms of systems support as they do worrying about day-to-day operations," he explains.

Cypress, who says the perceived increase in turnover might actually be attributed to the fact that some companies are creating CIO positions, cites two common mistakes in CIO hiring. First, CEOs tend to get a profile of the type of person they want based on what they read about successful CIOs in other companies. Second, CIOs, even when approaching retirement, neglect to groom successors with general management and IS experience.

He notes that most CIOs have five or six direct reports who fo-

Computers shift our way of thinking



David Van Lear
President
Banc One
Services Corp.

users do not see the necessity of involving programmers to solve their information and reporting requirements.

Quietly and at an ever increasing speed, computers are influencing how we are structuring our business environment and product delivery mechanisms.

These changes, while having a profound technical impact on our environment, are also presenting us with new social and moral issues. Expert systems, the design and database of which depend on input from knowledge engineers, pose no small threat in the eyes of these engineers as to the value of this knowledge and who owns and controls its use — sticky issues to be sure.

Information overload — too much data too quickly available — is a major by-product of the computer's influence in our workplace. We are being inundated with data that may or may not be useful to us in our decision-making processes. The management, interpretation and transformation of this data into useful information has created a whole new role for knowledge workers.

Computers today control our manufacturing, communications, transportation, defense and finance systems. They are an important part of our educational system. And as the next generation of workers enter the marketplace, computers will be as necessary to them as calculators and phone systems were to their predecessors. *

I think we can all point to numerous examples of the impact of computers on our work lives. The personal computer revolution has created new cottage industries and enabled the distribution of both data and function into the hands of end users.

Technology has found its way into the fields of education, entertainment and, with intelligent workstations, even into the area of application development. The shoemaker's children are finally getting new shoes.

More importantly, however, computers and computer-related technologies are changing the way we think about our work. Old solutions and approaches are being challenged as to their appropriateness in a more technically advanced society.

On-call programmers see no reason why they must commute to the computer center to fix problems that could be solved at home. End

cus on technology, rather than acting as general managers.

Another consultant who reports minimal CIO turnover in his area is Michael Anderson, regional director for management consulting at Groupe DMR, Inc. in Toronto. "In Canada, the turnover rate may not be as high as in the U.S. But there seem to be more and more people who are in the CIO role, no matter what it is called," he says.

Two career paths

Anderson suggests that one solution to the question of whether general business experience or technical expertise provides the power to move up the corporate ladder would be for a company to offer two career paths with comparable pay and prestige. One would be a technical route leading to a chief technology officer

position, while the second would be more business-oriented.

Will CIO turnover continue to grow? One of the researchers who worked on the Touche Ross study says yes, blaming the ongoing causes such as mergers and changing CEO expectations. But Thaine Lyman, a partner in Touche Ross' Chicago office, also offers one more factor.

"The free lunch — the big increases in budgets that IS has become used to every year — is gone. That, combined with the existing pressures on the CIO, indicate that the turnover may get worse," Lyman says.

But Lyman also sees a ray of hope for CIOs who become statistics in 1989. "You don't find the guys who are terminated out pounding the pavement for a long time. They always seem to find another job." *

INTERIOR

What's your mandate?

As MIS goals become more integrated with the business goals of the company, managers are paying closer attention to the trends governing their company's specific industry segment. *Computerworld* senior writer Alan J. Ryan interviewed MIS managers in a variety of industries to find out what their mandates will be for 1989 and how computing can affect the bottom line.



Esther Delurio
Director of IS,
Mitsubishi Motor
Sales of America

"I'm striving to get the senior management team much more involved in the strategic planning of the use of information technology. The automobile industry is extremely competitive . . . and however we can use the computer as a weapon to succeed is the mandate. Part of the strategy is to get tools into the hands of every employee. Whatever we can do to help people do their jobs, whether the tool is equipment or access to the main host, we'll try to give it to them."



Ron J. Ponder
Senior vice-president,
Federal Express

"We're continuing to develop new software and information systems. We will also focus on developing global information systems. In the next two or three years, we're going to focus 100% of our attention on an international information system so that we will essentially have identical systems working in about 100 countries. The third aspect of our future emphasis will be on research and development for our channel devices [small personal computers that allow customers to do business with Federal Express online]."



John A. Putney Jr.
Executive vice-president,
Teachers Insurance and Annuity

"Our primary mandate is to develop and support some new products and services the company will be offering. Second, we will begin a major upgrade in our operating system software from VM/VSE to VM/XA and MVS/XA and eventually to MVS/ESA; it will be a multiyear project, but in 1989 we will make the most significant change. Third, we will define architectures that will allow the use of LANs and PCs in some of the major business units. We will also be upgrading the IBM 3090 we just installed."



E. Ritchie Fishburne
Director of IS,
Burlington Industries

"Cost containment and cost reduction are the broad issues we will address in 1989. We will look at what is best for the company — centralized or decentralized mainframe processing. We've decentralized in the applications development area over the company's nine divisions. Other things that are the significant driving forces for us are customer service, quick response and electronic data interchange. We also want to expand our use of CAD in fabric design."



Allan Ditchfield
Senior vice-president,
MCI Communications

"For 1989, we will be focusing on quality, customer service and profitability. Our MIS group is unique because we're close to the company's business projects, such as the 800 and 900 services — those are company products, but they are really MIS responsibilities. Also, we're going to be opening up our back-end systems to let our customers use them as well. . . . We will let our customers come in and look at their own records in detail."



Lawrence Walters
Vice-president, Sara Lee Bakery Division

"The bottom line for us is providing a cost-effective accomplishment-oriented information resource function to directly support the company in meeting the goals of its approved annual operating plan. This goal will be achieved through the implementation of new major application systems, the technical upgrade of our computer facility and the addition of technical specialists in appropriate areas."



Tod O. Dixon
Vice-president,
Northeast Utilities

"The biggest thing we're trying to accomplish in our industry is to constrain the cost of data processing. The other significant issue is measuring our contribution to the bottom line. Our focus is changing from doing everything for everybody to really managing our corporate use of DP and getting a good return for it."

"We're looking for a place to test out artificial intelligence concepts . . . and we're looking at building a marketing base that is very new to our business. We have a lot of equipment out there, and we're looking for innovative ways to use it to generate revenues."



George Buick
Vice-president of IS,
Highland Superstores

"We're bringing the company into the 1980s. Our company has been a little remiss in providing funding to information systems, and they've now recognized that MIS can provide them with a competitive advantage. Our mandate is to move the company off the old technology. Last year, we were basically on IBM System/38 technology. We recently installed minicomputers in each of our stores, and we're now linking them all to a mainframe. We're converting from the System/38 technology to mainframe technology." •

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of the time.**

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your data."**

—Marylou Cincinelli, AT&T DSU Product Marketing Manager

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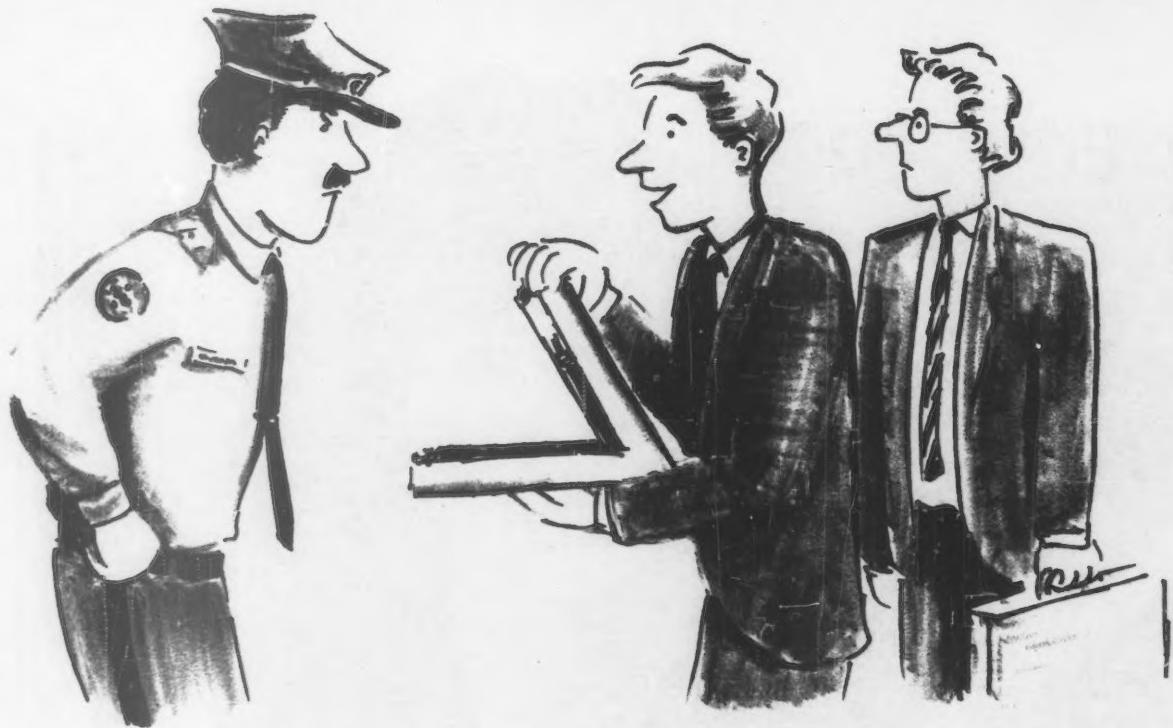
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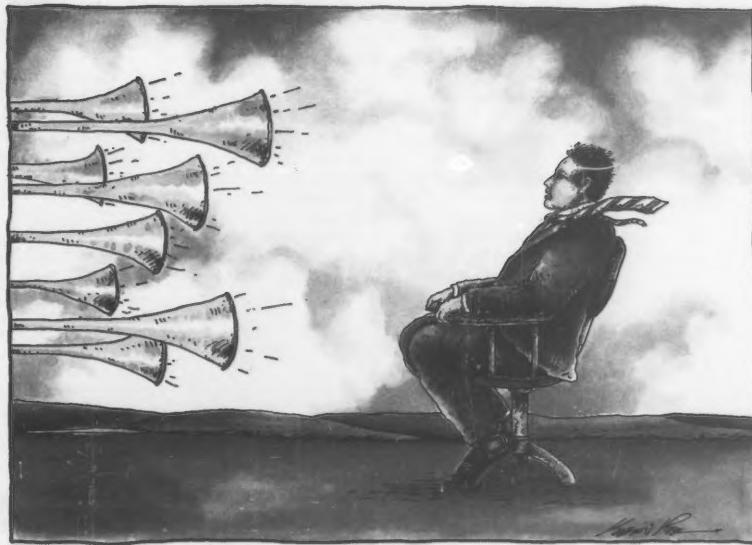
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KEVIN POPE

RISC: sweet music or just so much noise?

BY STAN KOLODZIEJ

The RISC market is filled with contradictions. RISC vendors are priming the market pump, but some observers forecast a shake-out. Analysts see a consolidation along the lines of the carnage that laid waste the complex instruction set computing, or CISC, market years ago.

While vendors extol the increased processing power provided by reduced instruction set computing, MIS appears to be indifferent to such claims. If there is a risk for vendors with RISC, it is that MIS just won't care one way or the other.

As usual, the truth probably lies somewhere in between. RISC might not fire MIS interest in 1989, but it's certain to change the rules of the processor game.

For one thing, RISC will still represent an important entry

Kolodziej is a *Computerworld Focus on Integration* senior editor.

Market will mature in '89, with some shake-out inevitable

point for new vendors, creating a new industry alongside a market polarized around the Motorola, Inc. 68000 and Intel Corp. 80386 and 80486 processor families.

The list of RISC players is already long and diverse, ranging from such small companies as LSI Logic Corp. and Cypress Semiconductor Corp. to heavy hitters like IBM and Digital Equipment Corp. And there are at least a dozen different RISC architectures already in the marketplace.

Even so, the RISC market is young and still undefined, enabling new RISC entrants in 1989 to gather some critical mass for their products.

Yet the RISC entry price will be getting steeper. RISC hardware is not likely to be much of a problem to develop, and in many ways it represents a commoditized product, following much of

the processor market in general. The software part of RISC is something altogether different.

"The [RISC] software is tough for newcomers," explains Michael Mahon, a system architect at Hewlett-Packard Co. "There are things like software compilers, mapping, porting [Unix] kernels and a heck of a lot of software fine-tuning to handle. It's a deterrent."

A conflict of strategies

There are also signs that as the RISC market enters 1989, its freewheeling days will be left behind. The RISC market in fact is already closing ranks, coalescing around a set of very definite vendor strategies that could quickly pull smaller RISC companies into their orbits.

Right now, much of that pulling is being done by Sun Microsystems, Inc. and Motorola. Sun is clear about its RISC

strategy for 1989 and beyond: License as much of the development of its Scalable Processor Architecture (Sparc) as possible to other companies, including Cypress and Fujitsu, Ltd. and, more important, big guns such as Texas Instruments, Inc. By keeping licensing fees low, Sun hopes to attract more developers in 1989.

Farming such RISC development out, Sun aims to leverage the production of its Sparc processors and create a hotbed of market competition to improve on Sparc.

The end result, according to Dave Ditzel, Sun's manager of advanced CPU architecture, will be more powerful Sparc processors produced at lower costs. Eventually, Sun's endgame is to aim Sparc-based workstations at the heart of the mainstream PC desktop market.

"We want to do in the RISC market what the clone manufacturers did in the [IBM] PC market," explains Anthony West, director of international business development at Sun. "We want to break it open. What we lose in

MIS managers await RISC performance benefits

BY ROSEMARY HAMILTON

Look to nearly any computer vendor and you'll find a company that recently presented big plans for a RISC platform.

But look to nearly any MIS manager and you'll find someone who doesn't care much about the flurry of RISC activity.

Based on interviews with MIS executives, RISC is a technology that is not a part of mainstream computing today and will likely play a small role in corporate computing strategies in the early 1990s.

"It's not part of my long-term strategy, but it certainly has my attention," says Dennis Klinger, vice-president of MIS at Ryder Truck Rental, Inc. "I want to experiment with it, but other than that, we're just watching it."

Profitable RISC

Nonetheless, RISC is a selling tool for most vendors — from IBM and DEC to Sun and smaller companies like Mips Computer Systems.

"We see RISC as a huge buzzword, but users aren't going to buy a system just because it's RISC," says Vicki Brown, director of systems research at International Data Corp. (IDC) in Framingham, Mass.

Analysts expect the RISC hype to continue next year as more products become commercially available and the different RISC camps challenge each other for market dominance.

RISC is being touted by some as the salvation for computing because it is expected to pick up where traditional CISC processors are expected to leave off. As CISC processors reach the physical limits of how much can actually be loaded onto a single processor, RISC processors are expected to take systems to new levels of performance.

"RISC technology is really the promised land," says David Burdick, an analyst at Dataquest, Inc. "We've just about run into a wall with CISC processing. If you talk to Sun, they believe they'll go up to 80 MIPS [with Sun's Sparc chip] before the decade is over. I believe that."

RISC relies on fewer instructions than CISC processors. While a CISC processor can run up to the 500-instructions range, RISC processors are normally less than 200, Burdick says. With fewer instructions, processors can be dedicated to specific jobs, and the smaller amount of instructions can be executed more quickly. The simple design also lends itself to a multiprocessor or parallel processor architecture more than the conventional CISC architecture does, Burdick says.

It is through this multiple-processor option that RISC-based systems will achieve MIPS ratings that surpass current high-end mainframes.

"Traditional architectures are reaching a dead end in terms of getting more performance," IDC's Brown says. "RISC will offer a lot more scalability, and that's important."

Not only will they bring performance improvements, RISC-based systems will be offered at lower prices than compara-

ble CISC-based systems, analysts say. Since manufacturers will be able to build systems with simpler designs, their costs will be lower; they, in turn, can pass those savings on to users.

But there is a trade-off. With the price/performance benefits come a new platform, and that means existing software can't simply be ported to it. "No question about it," Burdick says. "The problem [for RISC] with mainframe users is all

their software."

Despite the promises of RISC and because of the drawbacks, analysts say they do not expect MIS managers to rally around the RISC cause. Managers are more concerned with the overall price and performance a system offers than with the chip on which it is built.

"We don't sit around and talk about RISC," says Dean Allen, corporate vice-president of information and administrative services at Lockheed Corp. "We have a job to do. To the extent that it offers better cost and performance, we'll pursue it. But we're not putting a big RISC strategy in place."

Other users express a similar view, saying they expect vendors to provide a total package and that a vendor's talk

about RISC doesn't affect them.

"We don't buy boxes anymore," says Patricia Stadel, administrative vice-president and director of information technology at Addison Wesley, Inc., a publishing company in Reading, Mass. "Frankly, I couldn't care less if they do it with a complex or reduced instruction set."

Both users and analysts expect RISC to eventually emerge in mainstream computing as a component of an overall architecture. Certain processor jobs could be best served by RISC; others must continue with a traditional CISC approach.

RISC will play its most critical role for applications in which raw computing performance is the top priority and jobs — such as repetitive mathematical calculations — in which the actual number of in-



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Hamilton is Computerworld's senior editor, systems.

structions required is limited. As a result, analysts expect to see RISC-based systems do particularly well in engineering environments.

"RISC will become especially beneficial in the workstation area, where users are not managing multiple operations," says John Logan, president of the Aberdeen Group, a market research firm in Boston.

But the raw computing performance won't win many MIS managers' hearts, Dataquest's Burdick says: "To a general-purpose MIS environment, performance means supporting users adequately."

At CSX Technology, the information systems arm of CSX Corp., RISC has been pegged for a small niche in the overall computing strategy, according to Jack

Cooper, president of CSX Technology.

"It's exciting, but it's for a selective niche for us, like a high-performance [application such as] process control," says Cooper, who oversees an installation of several IBM 3090s that service his transportation firm. "We see it as an engineering/scientific technology. We don't see it as mainstream."

Performance more important

The Market Decision Systems group at Shearson Lehman Hutton in New York recently installed a Sun-4 system, a RISC-based workstation that is said to process at rates of up to 10 MIPS. But according to Gary Handler, vice-president of Market Decision Systems, the Sun system was selected because of its performance,

not because of RISC technology.

"I haven't made up my mind about what is better," Handler says. "I went with Sun because of performance. I wanted a demon compiler. It wasn't a conscious decision between RISC and CISC. I don't care if it's CISC or RISC or whatever, as long as they can bring me 10 MIPS in a box."

Malcolm MacKinnon, a senior vice-president at the Prudential Life Insurance Company of America who heads up the company's MIS effort, says he views RISC as an issue for manufacturers, not users.

"My focus is for faster, better and cheaper," MacKinnon says. "We're concerned with how programs can run on a platform, not about how it's built." •

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Focusing on standards, openness



Scott McNealy
President and CEO
Sun Microsystems, Inc.

One of the most significant trends, one that will enable computers to proliferate the way automobiles did 70 years ago, is the move toward standards and true open systems.

The proprietary architectures and operating systems some companies are still promoting (and often protecting through threatened legal action) are not the right solution, since they limit the user's ability to choose. Imagine what would have happened to the auto industry if each model of car had the brake, accelerator and steering wheel in a different location.

Increasing standardization will make the computer an even more essential tool in the workplace, letting us further boost productivity and rapidly exchange information.

But these goals demand an even greater commitment to networks and distributed computing. One result of networking — electronic mail — could have an enormous impact on the workplace in the near future, as more people are brought closer together via computers.

Sophisticated computers and connectivity could bring about fundamental shifts such as working at home or all-electronic purchasing. Meanwhile, as computers and telephones become more closely linked, the computer could not become only a work center but also a communication center.

Computers will continue to take over time-intensive, often tedious tasks such as inventory and scheduling, leaving individuals more time for creative work.

However, powerful computers running artificial intelligence applications can be used for more demanding jobs.

Computer technology will continue to refashion the way we work at an accelerated pace. In time, a computer — like an automobile — will become such an integral part of our lives that we can't imagine working without it. •

The net manager's apprentice

Or, how a nostalgia nap turned into a network nightmare

BY JEAN S. BOZMAN

All right, so I couldn't resist. I admit that I took my two kids to a rerun of Walt Disney's *Fantasia* for reasons of nostalgia. When I was a kid, Mickey Mouse was the best character going. In *Fantasia*, which I've seen a dozen times since, Mickey got to play the Sorcerer's Apprentice. That was the fellow in the robe and sorcerer's hat who summoned his master's magical spell to get his housework done by legions of brooms.

Well, I, too, had been swamped with housework that weekend, and I guess I must have dozed off during the Sorcerer's Apprentice part. Soon I was having my own nightmare — but this was about telecom standards, not brooms. Here's how it went:

In my dream, I was the telecommunications apprentice of a master network manager. I worked at a corporate office in the northern Chicago suburbs, having recently been transferred from computer ops. Anyway, it didn't take long until my boss was called out of town for an emergency conference of the CCITT X.700,000 committee in Geneva or Brussels or somewhere. It seems the international standards folks had to decide on a few things before the end of the year.

As he threw on his coat, the old man shouted some instructions over his shoulder. It sounded like, "Don't worry, be happy," but I later found out it was "When in doubt, use TCP/IP." Good advice for a mixed-vendor network.

Bozman is Computerworld's West Coast bureau chief.

Well, the boss was probably winging his way over the Atlantic when I got my first call on the Help desk. Seems like one of our Chicago end users wanted to access a European database but didn't know how to use the CCITT's X.75 internet standard. "No problem," I said and rushed over to the stack of communications manuals gathering dust on the old man's file cabinet.

Turning the dog-eared pages of one of the manuals, I discovered something I had always suspected. These standards had multiplied like bunnies. All the familiar CCITT X. standards were there, along with the well-known IEEE series. There were others, too — ones I'd never even heard about.

Communications standards were not the only ones that had proliferated. A second manual, this one on software, outlined the differences between AT&T's Unix System V, Xenix and IBM's AIX.

While I was thumbing through the manuals, I happened on a pink-colored cheat sheet in the master's own shorthand that summarized the differences between the standards. "Wow," I thought to myself, "Even he can't keep them straight."

Fortunately, my caller soon abandoned his quest for the data stranded in that far-flung European database. Seems my Chicago end user couldn't get his log-in sequence straight, anyway. Relieved that my first close call was over, I got some coffee at the Help desk's coffee station.

Then I returned to the network manager's cheat sheet, which amounted to a list of macros that sorted out kinks in our firm's global network.

Just as I was memorizing my first macros, the Help-line phone rang again. By this time,

it was late evening, and Tokyo had just come on-line. Seems the Japanese office wanted to know how to transfer a Unix file to my boss' MS-DOS-based PC. "No problem," I said. "Just tell me which version of Unix you're using, and I'll call up a specialist."

It would, indeed, take a specialist to understand all the variations of Unix on the market today. So I called up my Uncle Don, who had worked at Bell Labs before Unix was born, and he told me a little bedtime story: "Once upon a time, Bell Laboratories gave birth to a new operating system called Unix. I've heard his daddy was AT&T and his mother was a PDP-3 minicomputer."

"In his early years, Unix was the favorite plaything of the scientific community," Uncle Don continued. "But when he was older, Unix got a California cousin, a rival called the University of California at Berkeley Unix 4.1.

"Strange thing, though," Uncle Don said. "When Berkeley 4.1 grew up, they started calling him 4.2 and 4.3 — and I hear he doesn't look a thing like Unix System V. But I did hear that Berkeley's father, Bill Joy, is trying to conduct a genetic engineering experiment — something about merging the best traits of Berkeley 4.3 and AT&T's Unix System V. Kind of a test-tube baby."

Get to the point

"What's the point of this story, Uncle Don?" I asked, as I was under a good deal of deadline pressure. "Well," Uncle Don said, "some people didn't like Unix's father at all. That would be AT&T, who lives in New Jersey. Then, in 1988, another family wanted to adopt Unix. They called themselves the OSF — but what that stands for, I don't know. Right now, they're preparing a nursery for the new Unix offspring, but they won't show anybody the wallpaper or the carpet — and they won't grant Daddy AT&T any visiting rights."

"But what can I do to help my Tokyo end user right here and now?" I asked. "Tell him it's morning in Japan," Uncle Don advised. "Your Japanese user should go out to the local computer store and buy a version of Unix your Chicago PC can accept. He's going to have enough trouble sending the darned files halfway around the world. Thanks for the call, but I've got to turn in myself." That was Uncle Don's way of signing off.

After my bedtime story, I realized with no little horror that everyone else had gone home. "Please call back later," I told the Japanese caller. Anyway, with all those foreign standards to learn, I wasn't ready to learn about Kanji characters, too.

OK, OK. Things had gotten a bit crazy, but I was still in one piece. The machines were humming. The Help desk phones weren't lit up. That's when I saw it — MY FIRST BIG PROBLEM. The oversized IBM Netview screen was display-



BEATA SZPURA

ing a Systems Network Architecture system alert I'd never seen before. "Oh no!" I said. "I wonder if it'll go away by itself."

What I didn't know, or couldn't have known, is that Netview was better prepared for the task of network management than I was. It already knew which things to worry about and which ones not to worry about. But it was also patiently trying to tell me that a major link had gone down in Texas somewhere.

Seems a tornado had ripped through central Texas, around Austin. That's when the Help desk hot line started doing its impersonation of a Christmas tree. And that's precisely when I could have used Mickey Mouse's secret formula to multiply my hands or fingers to handle all those phones. Mickey's formula seemed

WHAT I DIDN'T know, or couldn't have known, is that Netview was better prepared for the task of network management than I was.

to work well enough on brooms.

"Network hot line. Can I help you?" I forced myself to say. "Hey, who is this, anyway?" the caller demanded. "We're in Austin, and we've got to hook up to Waco's VAX. That darned tornado has ripped the roof off our office, but the show has to go on. Our accountants say so. What's worse, our IBM mainframe doesn't even have a DEC-SNA interconnect package!"

For a fleeting moment, I heeded my

network master's last-minute advice. "Why don't you try using TCP/IP?" I ventured. But the howl from the wind that was plastering computer printouts against the Texas data processing shop's walls drowned out my weak suggestion.

Well, that Waco plant was one of our biggest factories, and without orders from the corporate IBM mainframe, the entire operation might be forced to close down. Just then, I remembered my boss' cheat sheet and cooked up a log-in se-

quence that probably had never been tried before.

It's no surprise that it didn't work. Instead of connecting the two Texas sites, I'd inadvertently gotten the Texas users logged onto that Japanese mainframe. Boy, was I going to be in trouble when the old man got back from Europe. That's when I tried patching the two Texas circuits together by hand. Not only didn't this work, but I shorted out the modem rack so badly that sparks started flying everywhere. I hoped the flashes wouldn't land on some errant piece of dust behind the rack and start a fire.

In the nick of time

Just then, the door flew open. I didn't know it yet, but help had arrived. I dove under a swivel chair to stay out of sight. It was 7 a.m., but the new day wasn't getting off to a good start. What began as calls from the stricken Texans had mushroomed into angry calls from coast to coast. New Netview messages were coming on the screen, fast and furious.

To my great relief, in walked the old man. Seems his plane never took off from snowed-in O'Hare. He had spent the entire night trading networking tricks-of-the-trade at O'Hare's Skyline Bar with a French communications specialist from IBM's LeGarde Lab. The former member of the French Resistance got a big charge out of the international standards movement, it seems, because it was really a nice way to fatten up his research and development budget. He's still working on making SNA conform to the Open Systems Interconnect.

The old man surveyed the damage, glancing from the smoking 19-in. racks in the back to the blinking red lights on the Help desk phones.

"Go back to computer ops, where you came from!" he growled. "And give me back my cheat sheet." With that, he got on the phone with Japan, read them a few lines of code and hung up. Another problem solved by the network master.

I guess I'll never really know what I did wrong or right that night in the network center. All I know is, I'm glad I'm not a network manager anymore. I'm especially glad I didn't have to memorize all those standards. And mostly, I'm glad that the stirring music of *Fantasia* jarred me out of my dreams and landed me back in a Chicago movie theater — where I belonged. To borrow from another great flick, "There's no place like home. There's no place like home. There's no place . . ."

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Fast speeds, slow expectations

PCs may be promising more power, but users aren't that interested anymore

BY WILLIAM BRANDEL

If the adage is true that anything worth doing is worth overdoing, the personal computer market has found its motto. Now the market's task at hand is to rediscover its mission.

The PC market appears to be cooling after a long period of rapid growth. Technological developments and manufacturing advances are allowing vendors to push the PC performance envelope. But now the question that MIS asks is, How much PC is too much?

Like the auto industry, the PC business is driven by consumer and business technology. PC makers can benefit from something the automakers learned the hard way about power hunger. As Detroit ground out luxurious gas-guzzlers that were rivaling artillery tanks in size, the possibility of an oil crisis that would bring U.S. auto manufacturers to their knees was as remote as the possibility of a memory chip shortage wreaking havoc in the PC market in 1988.

Brandel is a Computerworld senior writer.

The oil crisis forced the auto companies to downsize their designs and their expectations. Are PCs heading down a similar highway as Detroit?

Currently, powerful Intel Corp. 80386 processors are hitting the market, and the more powerful 80486 is just around the corner. Meanwhile, MIS is still figuring out how to get the most out of the adequate 80286 machines.

"There's not enough need for the amount of PC we're presently using," says Don Whittington, MIS director of the Michigan Sugar Co., based in Saginaw, Mich.

But Whittington notes that his company is using PCs based on the Intel 8088 processor — not a high-powered processor by anyone's standards.

"Our people are just using them for word processing and spreadsheets, and they can only do so much of that," he says.

Michigan Sugar is an example of what is occurring in many businesses. As it is the norm to automate in business today, it is also the norm to upgrade. But because of long-range budgeting and expected PC advances, many companies own more PC

power than they need. And while underutilizing their PCs, employees also waste time trying to figure them out rather than doing their jobs. But as the out-of-control market is now being tamed by corporate budget restraints, MIS is facing different PC decisions.

"Days of rampant buying are over," says Bruce Stephen, a PC analyst at International Data Corp. (IDC), a Framingham, Mass.-based market research firm. As a result, "Companies are becoming much more conservative with how they use PCs.

"PC products will not repeat the success of the *E.T.* video," Stephen says, alluding to the videotape sales blitz that occurred as soon as the popular movie was released into the home entertainment market.

"The PC market has been saturated with technology since the PC was first introduced. MIS budgets are tightening, not getting larger, and PC managers are being very careful about how they implement, study, gather evidence and make sure products are deliverable before they commit to any type of buying."

Stephen's analysis reinforces

what other analysts and MIS officials believe is a new phase of PC organization. Managers are reassessing the PC's role in their businesses.

"Forthcoming PC technology will be both good and bad," says Richard Kulper, MIS director at Sulzer Bingham Pump, Inc., based in Portland, Ore. "But if not planned properly, the PCs will come back to cause problems. And the hardware strategy cannot be controlled without spending a lot of money on [employees'] software."

Controlling the PC environment for a business includes estimating the amount of power required to perform the tasks that users need. With the new age of PC computing comes new budgeting priorities. Some companies are centralizing purchases and basing them on brand names; other companies purchase every product upgrade. Often, the needs of the users are overlooked.

One MIS manager notes that most of the PCs in her company are not utilizing the resident hardware and software. "Corporate wants us to use Dbase IV and asked me if I needed it or not," says Melissa Broadway, a data processing coordinator at Lomas & Nettleton Financial Corp. in Dallas, Texas. "I think we should look at Dbase III Plus and see if that is being used to its full capacity yet. We were just getting to use III to its full capacity when it was upgraded."

Catch-22

MIS and industry analysts concur that upgrading is overrated. In most cases, they say, productivity is not increased but depleted, and a catch-22 between "more productive" software and "higher performance" hardware begins.

For example, Michigan Sugar's Whittington notes that when a higher performance PC is brought into the office, the end results have worked against the stated intent: to make the employee more productive and useful to the company.

"Some people start playing with their PCs, trying to get them to do more for them, and they are usually the ones who be-



BILL RUSSELL

come less productive," he says. "Most of the things that our people are using PCs for can be done faster by hand," Whittington adds.

The issue comes back to where it started. Is the PC the means or the end? The emphasis, MIS directors say, should once again be on end users and what they are trying to accomplish with their PCs and making it easier, not more complex, to use the machines.

Familiarity breeds contentment

So back at square one, MIS calls on an old friend. Many managers say they believe that the strongest feature that drives PCs is user familiarity with the operating system — DOS, in most cases.

"Why switch to OS/2 if you are com-

MORE AND MORE, our users are becoming familiar with the term 'vaporware.' We were interested in OS/2, but the [users'] enthusiasm dwindled after it came out. . . . So we turn back to the XT's and AT's instead."

MELISSA BROADWAY
LOMAS & NETTLETON FINANCIAL

fortable with DOS?" asks David Carnavale, vice-president of microsystems research at Infocorp, a Cupertino, Calif.-based market research group. Carnavale's group analyzes PC user trends. "It is basically against human behavior to change when you are comfortable with an

operating system unless something comes out that is important enough [to warrant a change]," he explains.

MIS managers maintain that they are hard-pressed to find something brilliant that is new in the PC market — or anything new enough that would move people

to change their work habits. Under this logic, users do not have much cause to switch to OS/2.

The major impediment to OS/2 is simple: There is no demand for it. Not many applications are available that can run on it, and users say they do not want to switch from DOS.

OS/2 is difficult to use without the Presentation Manager, a graphical user interface co-developed by IBM and Microsoft Corp. The complete system is also expensive to use: Carnavale expects a fully loaded OS/2-running machine to start at around \$14,000, about \$12,000 more than it costs for a basic IBM compatible running DOS.

Analysts and MIS managers are scaling back their views of the demand for OS/2. Figures from Dataquest, Inc., a market research firm in San Jose, Calif., indicate that despite the Presentation Manager's Oct. 31 introduction, affordable applications that are compatible with it will not be out until 1990. Both Dataquest and IDC do not expect user demand for OS/2 to exceed DOS until that year. DOS will continue to be strong into the 1990s, IDC's Nancy McSharry says.

Seemed like a good idea

So why OS/2? Analysts and MIS managers say that it seemed like a good idea before it arrived. But once in the office, it's a horse of a different color.

Because of human psychology, users look at IBM's Video Graphics Array and Enhanced Graphics Adapter screens, and suddenly Color Graphics Adapter screens look funny. You look at a laser-page printout and dot matrix does not look so good. Word processing performs better with a faster CPU.

Which brings the argument back to the machines that run this software. MIS Director Broadway explains her dilemma.

"We [were] looking at PS/2s, which I think are an interesting idea," she says. "But then there's software. More and more, our users are becoming familiar with the term 'vaporware.' We were interested in OS/2, but the enthusiasm dwindled after it came out. We were also at first excited about PS/2s, with all the memory advantages without being physically larger machines."

But Broadway says the excitement about the PS/2s waned when she discovered problems trying to connect the machines to the mainframe. "So we turn back to the XT's and AT's instead," she added. "How do you recover your loss?"



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Broadway says that if the PS/2s cannot be integrated into the mainframe environment, they become a "dead issue," or virtually useless for her integration purposes. "I guess I'll have to find somewhere in the company to put these PS/2s."

"The PC market will experience specialization, a segmentation by brand into different product applications," IDC's Stephen predicts. "With stand-alone desktops running on Intel 80386 processors, the market cannot really equate these products as standard personal computers."

Most analysts say they agree that these machines, currently based on the 80386 processor and soon to include the 80486,

assumption that these machines are currently not being utilized to their full potential.

Common sense prevails

But even in the midst of some very confusing predicaments, there is a light in the darkness: common sense.

As companies try to be more competitive by using technology, MIS must consider that em-

ployees are using the PCs as tools, not to do their jobs for them.

Common sense calls for MIS to deliver PCs that are appropriate for the users' tasks and to ensure that the machines can be integrated into the larger system. If the PC cannot be used to assist the employees' productivity, the purchase works against — not for — its business purpose. •

MIS MUST consider that employees are using the PCs as tools, not to do their jobs for them.

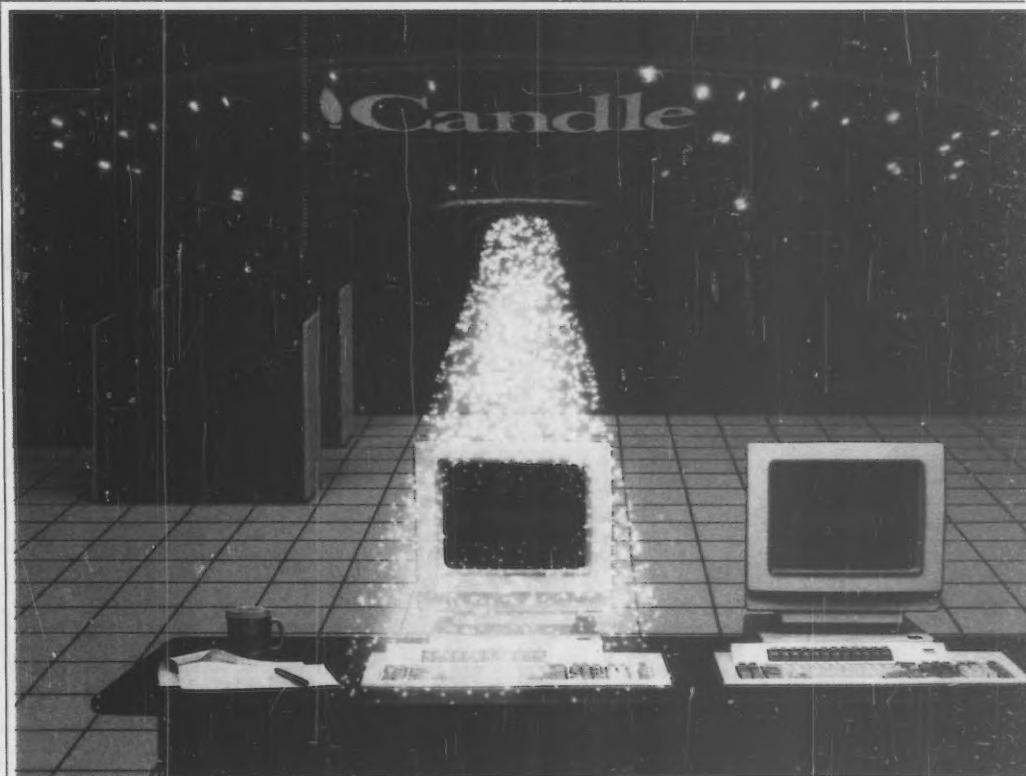
are a bit much to put on one individual's desktop.

Another factor that enters into the overall picture is the desktop cost structure. IBM Personal System/2 Model 70 and 80 machines can range anywhere between \$6,000 and \$10,000.

Stephen estimates that machines built around the Extended Industry Standard Architecture, an alternative bus built by IBM's Personal Computer rivals to compete against the Micro Channel Architecture (MCA), will start in price at the \$12,000 to \$15,000 range.

But currently, the majority of the million-plus MCA-based PS/2s at user sites are in stand-alone configurations. This means that most of these users are operating with, on average, \$8,000 of hardware alone.

Considering that few software or hardware products are available to take advantage of the PS/2 architecture, it is a safe



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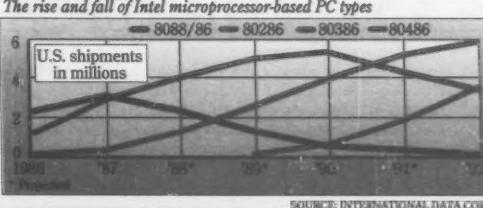
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PCs not yet part of CAD set

BY JULIE PITTA

Personal computers are slowly making inroads in engineering departments as tools for less demanding applications. However, Unix-based engineering workstations continue to be the machine of choice for serious design work.

"I think you can probably make any high-end PC into a workstation," says Alan E. Holley, principal consultant for engineering computing at Hughes Air-

Pitta is Computerworld's West Coast senior correspondent.

craft Co.'s Ground Systems Group, the largest of the six groups that make up Hughes. "But what machines are actually purchased tend to be based on what people have been used to using in the past."

Hughes is using Sun Microsystems, Inc. workstations to perform computer-aided software design for state-of-the-art defense systems. PCs so far have been reserved for administrative tasks. As with many engineering departments, engineers at Hughes tend to use two types of machines — Suns for design work and a PC to run traditional applications such as spreadsheets, word processing and data-

base management.

Jeff Ehrlich, MIS director of General Electric Co.'s Medical Services Group, buys every kind of PC imaginable for his users, from Tandy Corp.'s IBM Personal Computer compatible to Apple Computer, Inc.'s Macintosh II. However, the engineering group has not adopted the PCs brought in for its design work.

"Sun is very strong with the engineers," Ehrlich says. Not even the Mac II running A/UX, Apple's version of Unix, has persuaded GE's engineers to give the Mac II a try. This is despite Apple's efforts to promote the Motorola, Inc. 68020-based Mac II as an engineering workstation and the proliferation of Macs within GE, which is buying more Macs than anyone right now.

Ehrlich says the problem with the Apple approach is A/UX, which lacks the speed of the Sun operating system, its base of applications software and support for the X Window System environment.

Part of the resistance to PCs stems from elitist engineers who want the fastest, most powerful machines available. However, their bosses are recognizing the economy of a PC vs. a traditional engineering workstation. An entry-level engineering workstation from Sun — considered the leading vendor — or its nearest competitor, Apollo Computer, Inc., costs about \$20,000.

An Intel Corp. 80386-based machine from Compaq Computer Corp., considered the leader in 386 technology, sells for about half that price. As a result, industry watchers say that more PCs are being purchased as engineering tools.

The 386 microprocessor allows PCs to offer a more powerful hardware platform

PART OF THE resistance to PCs stems from elitist engineers who want the fastest, most powerful machines available.

for Unix. However, the 386 still lacks the speed of a 68020. While a 386 running Unix is not suitable for complex applications such as molecular modeling, it is suitable for two-dimensional design work.

"An 80386 running Unix is absolutely a workstation," insists Dave Burdick, a vice-president at Dataquest, Inc., a San Jose, Calif., market research firm. "If they can use the disk as a rotating memory device, then they can run large engineering programs. You don't need to spend \$50,000 to do CAD," he says, referring to computer-aided design.

Burdick's colleague Bill Lempesis, a PC industry analyst at Dataquest, says more PCs bundled with Xenix, Microsoft Corp.'s version of Unix, are being sold than ever before.

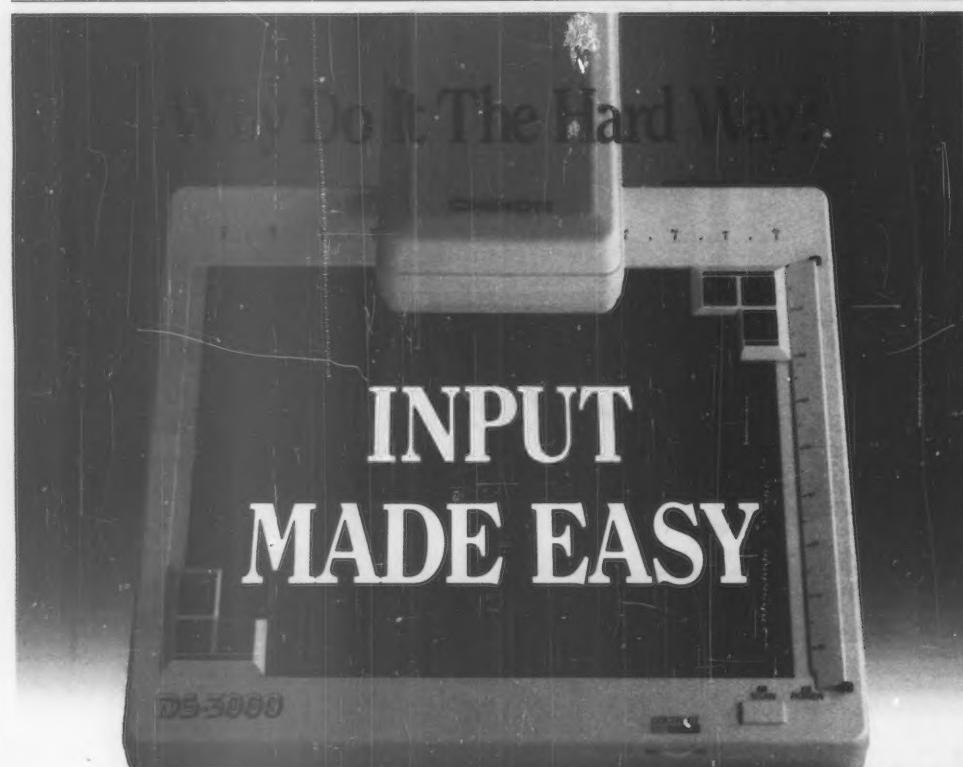
Not there yet

Both Burdick and Lempesis say 386s, like the Mac, have a long way to go before becoming popular with engineers. "The 386 running Unix is still an immature environment," Burdick says. "There isn't very much application software written." Lempesis adds, "PC vendors haven't positioned their machines as engineering workstations."

One 386 that has been positioned as an engineering workstation is the Sun 386i, introduced earlier this year. The 386i runs Microsoft MS-DOS and Unix. Sun has not released shipment figures on the new system.

In addition to prejudice, PC vendors must overcome some physical obstacles, Burdick says. Large corporations have years' worth of data stored in minicomputers and mainframes that must be accessed to perform engineering tasks. Workstations provide the better link to mainframe applications, Burdick maintains.

"The large companies are tied into their workstations," he says. "They've built up years of data that they aren't willing to give up. PCs just don't offer the kinds of connectivity and compatibility to these machines."



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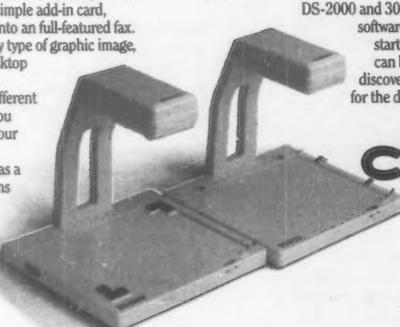
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CASE fights to beat 'all talk, no action' image

Confused users hold unrealistic expectations of the technology's short-, long-term benefits

BY NELL MARGOLIS

CASE, at this point, is a lot like teenage sex," says an enterprising CASE consultant. "Everybody's talking about it; few are actually doing it; and even fewer are doing it right."

While some might argue with his analogy, few involved in the implementation of computer-aided software engineering (CASE) — whether marketing tools, consulting with would-be users or attempting to join the ranks of CASE users — would debate his point.

A study, among the first of its kind, conducted by Bellevue, Wash.-based consulting and market research firm CASE Research, surveyed commercial, mainframe-oriented MIS shops at large companies across a broad spectrum of industry sectors with regard to CASE implementation and intention. The relative dearth of active CASE work, coupled with a low level of what the report called "CASE preparedness," led the report to conclude that "the market as a whole is in a pre-CASE environment."

CASE Research's findings were confirmed last month by *Computerworld* (see story page 50). What factors are retarding the implementation of one of the hottest technologies to flood media pages and market shelves in the past several years? And how likely are these barriers to be overcome in the coming year? The short answers appear to be "many obstacles" and "very likely" — at least to some extent.

What is CASE, anyway?

One of the first (and worst) problems facing CASE, says CASE Research Chairman Vaughan Merlyn, is that the very attention the technology garners is confusing users, not only about which tools do what for whom, but also as to what CASE is, or is trying to be.

"There aren't very many people who can explain the promise of CASE tools in two or three sentences," admits Anthony I. Wasserman, chief executive officer of San Francisco-based tool vendor Interactive Development Environments (IDE). A major reason, he says, is that there is a plethora of alluring products, but there is no unifying or simplifying concept for the technology.

"There's a tremendous hype/reality gap," Merlyn says. This has two insidious effects. First, hype has inflated expectations, which lead to early frustration when individ-

ual CASE tools or approaches do not turn out to be overnight cures for whatever problem the user hoped to abate. Second, Merlyn explains, the hype deluge is leading users to aim CASE at the wrong problems.

"The hype is about productivity," he says, "but the real issue is quality. CASE teaches you how to do things better — not how to do the wrong things faster."

The result of this confusion is predictable. "Many firms," IDE's Wasserman says, "have taken a very short-term view of what's out there. They rush to get a tool to evaluate on a specific project without assessing how either the tool or the project relates to overall software development needs, methods and goals."

Education is the apparent cure for this problem, and, not surprisingly, explaining CASE is rapidly becoming a market in itself.

"When companies bring in CASE out of excitement without any organizational preparation, the tools don't fit into the corporate culture and usually become shelfware," says Dave Sharon, president of CASE Associates, a consulting firm based in West Linn, Ore. Consultants are taking advantage of a major income source by providing CASE services

including auditing companies for CASE preparedness, Sharon says.

Self-education — becoming a canny consumer — is also a good idea, claims CASE consultant and newsletter editor Gene Forte. For instance, "Look for experienced vendors. Ask: Does this vendor have a users group? Who is invited to attend its meetings? What do they speak on?"

Also on the increase, according to many users and would-be users, is education at the peer level. "This user-group thing has really taken off," says Kurt Wagner, manager at Arthur Young in Seattle, upon returning from the first nationwide organizational meeting of the CASE User's Group, an association spearheaded by CASE Research. The seedling association started with one regional chapter: when the conference began early last month; by the time the attendees departed, nine regional chapters were formed.

"There's tremendous interest in this," Wagner says. "Until now, there's been no monthly forum with a working-session feel to it, where CASE users could exchange information and experiences. Almost everything you read about CASE is put out by a vendor."

CASE of resistance

"CASE is a tremendously hard sell," says Judith Martin, vice-president of the First National Bank of Chicago. One of the major factors making it so, Martin explains, is the



Margolis is a *Computerworld* senior writer.

Pandora's box nature of CASE. "At every step, as you implement methodologies, new questions and problems appear — you need more understanding, more information, more management," she says.

For starters, Merlyn says, "Programmers feel threatened by CASE." They are ill-educated to feel otherwise, he states. "Throwing CASE at programmers is like saying to a nurse, hey, we've got this great computer-aided brain surgery software that we want you to start using tomorrow."

adds Merlyn, "Just because you have the tools doesn't mean that you have the training that makes you able to use them." Even those who do not feel threatened are often unprepared to discipline themselves to the rigorous methodologies that underly CASE.

"The mind-set of software developers is a major barrier to CASE," says Wayne Sanford, director of contract service systems development at Bath, Maine-based Bath Iron Works Corp.

Software developers, he says, often "don't take an engineering approach — which is what CASE relies on. They take an artsy-craftsy approach, where everyone has his favorite bag of tricks. Many aren't skilled in formal methodologies; they have to pick them up by osmosis."

Ironically, understanding does not always break down the resistance to CASE. To the contrary, as users realize the time commitment inherent in what amounts to a revolution in the way software creators think and plan, they often balk.

The full transition to working CASE, says Lee Stevens, a Corporate Engineering and Technology engineer at Pitney Bowes, Inc. in Norwalk, Conn., "isn't the two days that some would lead to expect; it isn't the six months that some would imagine; it's more like two years. The decision to go with CASE should be made with the recognition that it's going

to be around for a while."

Unfortunately, "IS organizations like to see a lot of value up front," says Woody Blaylock, marketing and sales manager at Owens-Corning Fiberglass Corp. in Toledo, Ohio. Performance Resources, Inc., a software design consulting firm in Falls Church, Va., recently surveyed 19 CASE user companies on the question "What must systems/DP organizations do to successfully implement CASE tools?"

According to the ensuing research report, survey participants, who ranged across a broad spectrum of businesses, "overwhelmingly reported that they had unrealistic expectations concerning what the tools could do for the organization. This is particularly true for the short term. In fact, there may be no measurable short-term benefits."

However, the report says, most companies did conclude that CASE held promise of significant long-term gains.

Problems still possible

Even assuming that all the other hurdles are overcome, problems can arise when it comes to deciding who will manage a new CASE system.

"We went through all this in the database area some years ago," Merlyn reports. "We gave database management to programmers: at best, we got administration; at worst, chaos. It took 16 years to come around to the independent function of database administrator."

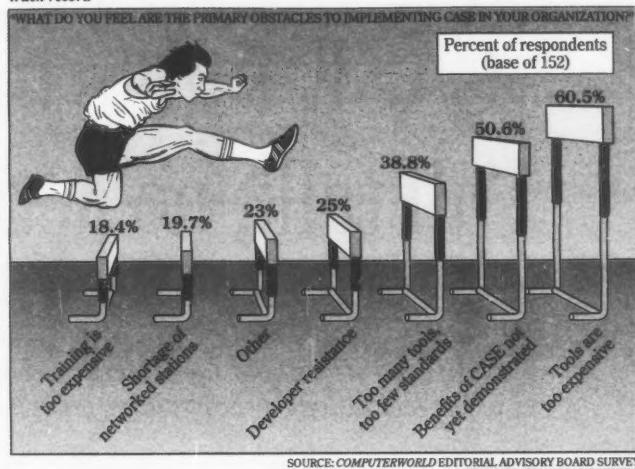
Consultants and, to a mounting extent, users themselves are evolving numerous ways to cut through the seemingly interminable problems that add up to CASE resistance.

Simple awareness of the problems can take potential users a long way, particularly when it comes to the cultural and political aspects, says CASE Associates' Sharon.

"Be sure you understand your par-

First hurdles

The main deterrents to CASE implementation currently are expense and the lack of a proven track record



SOURCE: COMPUTERWORLD EDITORIAL ADVISORY BOARD SURVEY CW CHART: FRANK C. O'CONNELL

ents," he says. "Know where you came from. If you don't respect the 20 to 30 years of evolution that went into your corporate culture, you're going to get nowhere with your attempts to implement CASE."

CASE implementation "will follow as long as there's training," says Pitney-Bowes' Stevens. Stevens' own company was involved in a combination approach — hire some outside experts, but develop in-house training capability as well.

The inside development, he says, is critical. "If you depend 100% on outsiders, you're in trouble because when those people are gone, they're gone."

Not to be overlooked, most CASE observers agree, is the simple fact that time

is on CASE's side. CASE is in its infancy. The more that is known, written and es- cially discussed user-to-user about the CASE implementation experience, the more the right questions will be asked — and answered.

Says Arthur Young's Wagner, "We're trying to do in a few years what it took 100 years for civil engineering to do. The whole CASE brouhaha might be the catalyst we need to us to start acting like engineers and stop acting like an arts-and-crafts profession."

"Price is a big issue in CASE implementation," says Jim Stuart, data administrator at Puget Sound Power & Light Co., an investor-owned utility company

Continued on page 50

How computers are changing the way we work



W. Michael Blumenthal
Chairman and CEO
Unisys Corp.

Amidst the economic uncertainty of 1989 and beyond, the top priority for management will be to increase the pace and quality of innovation and, therefore, the competitiveness and profitability of their enterprises.

In company after company, CEOs and CFOs express the conviction that the key to achieving this objective is to exploit the use of information systems. These business leaders talk about their keen interest

— and at times their impatience and frustration — first in understanding and then in optimizing the payback they are getting from investments in computer and communications systems.

Consequently, the predominant trend in information systems in the future will be that business executives will take a much greater interest and personal involvement in making decisions about information systems.

Moreover, CEOs and CFOs realize that the very concept of "payback" needs new definition in the world of the '90s. While the issues of whether a computer system is doing its job efficiently and cost-effectively will still be addressed, a more important issue will be whether a company's computer systems are being used for the best possible purposes.

In this broader context, the cost of an opportunity lost because of a bad choice of computer systems must be measured

in terms not only of lost profits, but of lost competitive position or market share.

As a result of this more activist analysis and management involvement, some of our industry's oldest myths and assumptions will be challenged by the fresh candor of senior managers.

They will ask such questions as: Is the best system the cheapest one or the one whose total productive lifespan is greater than a competing system? Why standardize on one proprietary operating system when open systems based on standards and hardware-independent applications give us so much more flexibility? Why is our application backlog always so heavy? And which vendor can help us solve the problem most effectively?

Moreover, the rapid advancement of information technology will not only solve formerly unsolvable problems, but challenge management to find innovative, productive and

profitable uses for these powerful systems.

In 1989 and beyond, four technology areas, in particular, will account for most of the growth in the information systems industry:

Mainframe systems will play revitalized, innovative roles in implementing a company's competitive strategy. Large, highly fault-tolerant systems will provide real-time transaction processing; but in addition, they will more and more be the "super servers" of vast distributed systems of PCs, workstations and microcomputers — thus ensuring corporate database integrity and providing powerful network management services.

Open systems based on Unix System V will provide a new level of cost-effective, vendor-independent computing and flexibility that will directly challenge management to automate for immediate productivity gains, as well as create applications to generate new revenue

streams and profits.

Software application design, generation and maintenance tools will be used to eliminate application backlog. What is more, these sophisticated programming tools will increasingly make the difference among operating systems transparent to users by allowing them to transfer applications with ease from one system over to another.

Finally, networks capable of moving multi-media information instantaneously around the world will challenge all parts of an organization to use information for real-time competitive advantage.

The availability and power of these information systems will continue to give managers more tools and options for identifying and capitalizing on new opportunities. The contribution these systems can make will play a fundamental role in business strategy and in the way managers plan for greater competitiveness. •

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<i>Senior V.P., Technology Services Group</i>
Systems Software Strategies & Direction
Robert P. Tasker
<i>V.P., Software Research Group & IBM Advisory Service</i>
Strategies for Peripherals & Associated Software
David Vellante
<i>Director, Peripherals Research</i>
Strategies for Large Processors
Curt Beaumont
<i>Director, Systems & Peripherals Technology Service</i>

12:30
Luncheon
Strategies for Microcomputing
Aaron Goldberg
<i>V.P., Workstation Research Group</i>
Strategies for Software Engineering
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CASE

CONTINUED FROM PAGE 46

based in Bellevue, Wash. "Any MIS director is going to choke at seven figures for a tool to help programmers — especially when you're talking about another half a million for a repository and \$10,000 for each 386-type workstation."

Already sold on CASE as a concept, Bath Iron Works made its initial tools decisions based on functionality and price, Sanford says. It opted for a package from New Haven, Conn.-based Cadware that met the Maine shipbuilder's needs at one-quarter to one-third the price of the current market leaders, he claims. "You can't justify spending the kind of money

the market leaders are looking for for something unproven," he says.

Not everyone, however, agrees that price is, or should be, a barrier to getting on with CASE. "Price isn't in my list of the top five problems facing CASE, or in the top five in any survey I've ever seen," Case Associates' Sharon says.

Deceptive pricing

For one thing, he points out, the lofty prices listed by the market leaders are highly deceptive. Aggressive discounts that apply in most seriously undertaken implementation situations make the prices a lot lower than they look. Sharon speaks scathingly of companies that set out to capture CASE market share based on drastically lowered prices; to emphasize

the up-front cost, he says, is to lead with the wrong edge.

"For a large company, CASE implementation becomes an integration issue right at the outset," Stevens says. "If tools don't have an open architecture, we won't even consider them."

Tool integration must reach beyond data exchange, says Sharon. "Even if tools exchange data, I still might want to fine-tune," he says. "The question becomes, How open is your architecture?"

Possibly because the integration problem looms so large, so early in the game, solutions are already pouring forth from a variety of sources. Individual tool vendors are increasingly aware that an isolated CASE product is less likely to sell.

Many CASE observers say they be-

lieve that true integration will be achieved only when standards are imported into CASE. "No one vendor has the whole solution," says Merlyn, who considers lack of standards a definite entry on any list of the leading barriers to CASE implementation. "And even if they do, it's the whole solution from their viewpoint, not from each individual user's. Integration is highly personal; it has to be one-on-one," he claims. Such a need, Merlyn adds, can be met only by standards for such standbys as repositories, human interfaces, data types and methodologies.

Hurdles

The barriers in the way of broad-based CASE use are many; the emerging means of surmounting such barriers, however, are even more. It is a good thing that they are, for there is a widespread view that the CASE debate has shifted from "whether or not" to "how and when."

"Fortunately or unfortunately, depending on your view, most of the major systems development technologies are rapidly changing and adopting a CASE perspective," CASE Research concluded in its 1988 Annual Survey. "Also, information management technologies are no longer considered 'back office' functions; they are of strategic importance to the competitive survival of businesses."

These factors, CASE Research reports, lead to the recognition that "CASE must be exploited now. You simply cannot afford to wait." •

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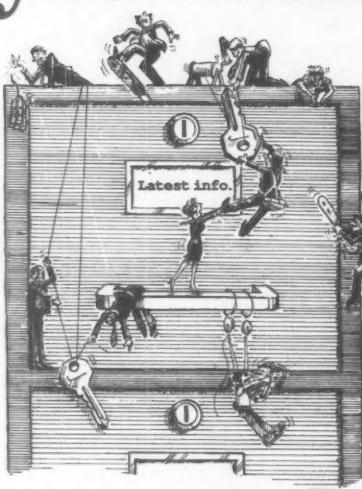
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CASE jury still out

When one consultant definitively stated that the high cost of CASE tools "isn't in my list of the top five problems facing CASE, or in the top five of any survey I've ever seen," he hadn't seen *Computerworld's* — where it is No. 1.

In a survey completed last month, 60.5% of the 154 top MIS executives who participated in a study conducted on behalf of CW targeted the expense factor as an entry barrier to CASE. In addition, 18.4% listed the expense of training as a reason for holding back on CASE implementation.

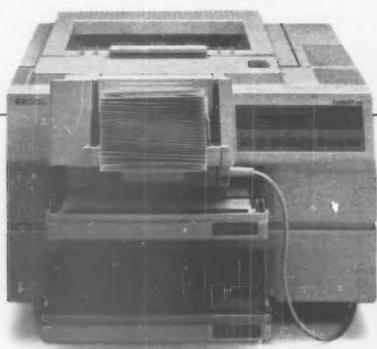
Other than the warning signals sent out by the dollar sign, however, the survey results implied that the jury is still out when it comes to CASE. The benefits of CASE have yet to be demonstrated. 50.6% of the respondents said; 38.8% pointed to too many tools and too few standards as a disincentive toward trying CASE.

Moreover, 54.4% strongly or fairly strongly agreed with the statement, "Not enough information has been made available about the issues in the CASE market." In addition, while only 24% of the survey respondents said that their organizations were now using CASE tools, almost twice that number — 47% — indicated plans to try CASE within the next 12 months. •

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LANDSCAPE

1989 will be the year of DB2's coming-out party

But is IBM's DBMS ready for the rigors of adulthood?

BY AMY CORTESE

Most industry observers would agree that DB2 has become the standard for mainframe database management systems. But like the 3-year-old emperor of China, DB2 may not yet be mature enough to live up to the responsibilities of the throne.

There is irony in the fact that IBM's DB2 was accepted as a standard by much of the industry before it was able to handle the high-volume production applications that a mainframe DBMS should handle. In most cases, DB2 is still used for information center-type applications, not for the applications that run a business.

1988 will go down as a critical year for DB2, one in which many announcements were made laying the foundation and direction for DB2's future, promising that DB2 will grow to be a real production-class system. Users saw 30% to 35% performance improvements in 1988 as well as the announcement of much-needed functionality such as referential integrity and data sharing.

In the coming year, IBM must start delivering on its promises. As production applications start coming on-line, DB2 will be put to the test. This will be the year that DB2 grows up and the irony is resolved.

Inroads on IMS

DB2 is just now beginning to be utilized for new production applications formerly reserved for IBM's IMS. "We are now reaching a point where DB2 performance is acceptable to build business applications," says Bill Franks, group manager of technology at Frito-Lay, Inc. "I still don't think of it as a true performance DBMS, but we're start-

ing to feel more comfortable with it." Frito-Lay is now using DB2 for decision support in conjunction with IMS. Although the company will use IMS for years to come, Franks will consider developing new business applications under DB2.

Another DB2 site considering production applications is Banc One Services Corp. in Columbus, Ohio. "Performance improvements have made DB2 a whole lot more appropriate for production applications than in the past," says David Van Lear, president of Banc One Information Services. "The number of transactions per second in the past prohibited many applications, so most DB2 applications were ad hoc rather than production environments."

A recent survey of DB2 users conducted by International Data Corp., a market research firm in Framingham, Mass., found that the application mix is shifting from information center to production, with a surprising 47% of the respondents indicating that production applications were their primary applications.

Many DB2 users are pursuing a dual database strategy, using IMS for production applications that require high volumes of transactions and DB2 for query-and information center-like applications.

Ron Perlow, data manager at Manufacturers Hanover Corp.'s Corporate Systems division, says his organization, like many, is using DB2 as a query facility for IMS data. Each is well-suited to its own applications, he maintains, but DB2 needs more functionality, and IMS lacks a query facility. The dual database strategy means that the two databases end up being out of sync much of the time. Perlow has asked his developers for a strategic direction to go with either DB2 or IMS.

IBM has made improvements to DB2 that make it a viable transaction-processing DBMS for the first time. However,



TIM LEWIS

many of the pieces in IBM's database strategy are just coming together. Roberto Montero, a database analyst at Chevron Information Technology, believes the lack of development tools in the past held back many applications. "We would have had production applications four years ago if we had a delivery tool," he remarks. IBM's Cross Systems Product is widely regarded as inadequate, but in the past year, a vast array of tools made by third-party vendors have become available for DB2.

Some contend that DB2 still needs critical functionality, such as a transaction manager, before it can be used for high-volume transaction processing. The problem, according to Gig Graham, an analyst at the Stamford, Conn.-based Gartner Group, Inc., is that new DBMS technology is being used with old transaction management technology, like IBM's CICS and IMS.

Many believe IBM will have to improve CICS's transaction management capabilities or

come out with a completely new transaction manager for DB2 to really be up to par.

Steve Laino, manager of database administration at Depository Trust Co., believes a lack of understanding of how DB2 works has kept many users from implementing production applications. Depository Trust currently has 40 production applications running under DB2, representing 13 million to 15 million SQL commands a day. Laino's shop processes extensively through CICS, he says, and although CICS is resource-consuming, he has not experienced any bottlenecks. Laino maintains that as long as the resource-control table that resides in CICS is constructed properly, CICS can manage transactions just fine.

Performance is critical if DB2 is to become widely used for production applications. Performance and referential integrity are prerequisites to allow distributed environments in the future. Until these capabilities are

Cortese is a Computerworld senior writer.

established, real distributed processing is not realistic.

In October, IBM announced the first stage of its plan to allow distributed data in DB2. Along with referential integrity, IBM announced the availability of a single-update, single-read capability between two DB2 systems and initial support for multiple-read, single-update capability among multiple DB2 systems.

This is the first step for many users who envision distributed environments in the future. Distributed data management is still a ways off, and IBM is slowly putting its strategy in place.

Different strokes

Distributed processing means different things to different people. Most distributed processing today consists of simple transactions, commonly called remote requests.

In this type of transaction, the user queries a remote database and receives a copy of the original data. This method is fine in many cases, but since the copy does not reflect changes made to the original database, the data is not up-to-date for long and the systems are quickly out of sync.

The next phase of distributing access to data is what IBM has called the "remote unit of work," wherein a collection of related SQL statements constitutes a unit of work. In a remote unit of work, a user can read and update a single, remote DB2 database within a unit of work.

The transaction will go through only if all the statements have been successfully completed. If the unit of work is completed successfully, the transaction is committed; if not, the data is rolled back to its original state. While the application is executing, the data is protected by a locking mechanism. If multiple DB2 DBMSs need to be accessed, multiple units of work must be issued.

This capability is currently available under IBM's VM/SP with SQL/DS. A remote-unit-of-work capability was announced for IBM's OS/2 Extended Edition a year ago; in October, it was announced for DB2.

The next stage of distributed data is called, using IBM terminology, the "distributed unit of work." The new functionality in this technology allows access to multiple relational DBMSs within a single transaction, or unit of work, rather than just one.

This capability was aired in the October announcement of DB2 Version 2 Release 2. Under MVS/CICS or IMS/DC, a user will be able to read any number of local or remote DBMSs and write to the local DBMS. However, in a TSO or batch environment, a user could read many and write to a single local or remote DBMS.

The next phase in distributing data is the distributed request. In this distributed nirvana, all

transactions that can be done locally can also be performed in a distributed environment. This capability, however, is a long way off.

Although distributed processing is being widely discussed currently, two things are clear: It will be several years before this technology is here, and users — excluding a handful on the leading edge of distributed process-

ing — do not need it right away.

The main impetus for distributed data access is to let end users have access to the information they need to make decisions and do their jobs — regardless of where the data resides. This can be done by providing access to data, without the data itself being distributed.

For instance, at Huntington National Bank in Columbus,

Ohio, John Voss, systems development manager envisions one database accessed by many branch locations, providing intelligence at the local level. Although not doing any distributed processing today, he sees the customer information applications coming on-line in the 1989-90 time frame.

Voss says whether Huntington needs true distributed pro-

cessing still is not clear. "It sounds wonderful, but you have to look at the costs associated with it," he says, adding that new data administration and security problems are created.

Nineteen eighty-nine will see the implementation of IBM's announced directions for DB2 — including referential integrity and data sharing between DB2 databases. In addition, users will

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see further performance improvements that take advantage of the vendor's Enterprise Systems Architecture. IBM is also expected to unveil the pieces of its long-awaited repository.

Many users today are building systems in anticipation of these capabilities being available when their applications are ready.

So this year will be one of waiting for many users who are anxiously hoping IBM will deliver on its DB2 promises. •

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BY MARK BREIBART

Thousands of dollars are spent by MIS managers each year on consultants' advice. Yet there is no way to measure the value of this service, and user needs or business trends are often more influential in determining a company's technology direction than an expert's recommendation.

Nevertheless, managers continue to use consultants to gain additional insight, and the relationship between consultant and manager, like religion, is a matter of faith.

"These forecasts help stretch our thinking, but you have to look at your own company and its needs," says John Callahan, director of information resources management at Hershey Foods Corp. in Hershey, Pa. "You have to have your own agenda."

MIS managers keep the consultants' advice firmly in its place — as raw data for their own evaluations or as support for a case they are trying to make. When it comes to crunch time, there is no doubt whose word wins.

"If there's a discrepancy between what I think and what I read, we look harder," says Mark Schmidt, director of technology at Wal-Mart Stores, Inc. "But ultimately, I have to trust my own senses."

Some executives are skeptical about forecasters. John Langenbahn, vice-president of information resources at Dayton, Ohio-based Mead Corp., says he takes it all with a grain of salt. "They've been projecting things for 10 to 15 years, much of which never happens," Langebahn claims. He says he favors the pragmatic approach of waiting to see what really develops.

But such strenuous doubters are in the minority. Most managers are hungry for all the insight they can get.

All industry analysts are not created equal, however, according to discussions with some 20 information executives. Most often mentioned as being useful were those, like Gartner Group, Inc. in Stamford, Conn., that emphasize the technologies and their implications for MIS planners. Others that managers often turn to include Index Group, Inc. in Cambridge, Mass., or the Big Eight accounting firms, which focus on top-level strategies and training.

Balloon busters

Cautious before committing themselves to a new technology, especially one surrounded by the balloons and banners of the promoters, many managers call on their consultants to puncture the hype.

When artificial intelligence was first gaining notoriety, Callahan found it intriguing but was not sure how well it fit in with his "rather parochial" industry, which tends to shy away from experimental technologies. He checked out the AI vendor himself, then sought a second opinion from the computer con-

sultants at Arthur Andersen & Co. in Chicago, Hershey's accounting firm. He wanted to know "whether this was a visionary approach that we should get involved in or whether we should use the Missouri approach to see if AI would stand the test of time." Arthur Andersen recommended that he wait. He did, and he is glad he held off, but future evaluations of AI are part of his five-year plan.

MIS executives often need to check out the vendors as well as the technologies. Before committing large resources, managers want to make sure the supplier will be around for a few years and not follow other high-tech shooting stars into oblivion. Yet, this is often an analysis they need help with.

"We are not interested in having a staff large enough to do all those things ourselves, though we do have our own

BY crystallizing the diverse opinions, [analysts] smooth the whole process of decision making.

PORTIA ISAACSON WRIGHT
FUTURE THINK

in-house experts," says Hans Huppertz, director of information systems at Dow Chemical Co. in Midland, Mich.

When asked by Dow's agricultural research division about putting Oracle Corp.'s relational database on its IBM mainframe, Huppertz made one of his frequent calls to the Gartner Group for an evaluation of the future health of the Belmont, Calif., firm. "It's like buying a little insurance for our own opinions," he says. When the Gartner Group came back with a positive report, the division got the go-ahead.

The benefits from new hardware technologies are often more obvious — or at least easier to judge — than those of new software. But for planners, the timing of future purchases can be everything. For example, a Gartner Group forecast that erasable optical disks were coming down the road in a year or two changed the plans of Walter Perkowski, vice-president of computer operations at Republic National Bank of N.Y. He decided to put off buying more current-model hard disks and see if the optical devices really met Gartner's predictions. He's still waiting and will wait for "another six months or so," he says.

At McGraw-Hill, Inc. in New York, Richard Shriver does all he can to be prepared for new product announcements. He uses the forecasts of outside subscription services and of in-house experts, and he talks "to people who profess to know as much as anyone outside the proprietary halls" of the ven-

dors. But since the unexpected is always possible, he hedges his bets. "We go to great lengths to defer major mainframe purchases whenever we can," says Shriver, McGraw-Hill's senior vice-president and chief technologist, just in case an unanticipated product announcement is lurking around the corner. A well-timed delay of even a month could save the company up to \$500,000, he adds.

Shaping thoughts

Beyond products and beyond trends, the research groups help shape the unconscious thinking of information executives in ways that cannot be pinned down completely. "It's the kind of thing where you get an 'Ah ha!' when you read it, but two weeks later you don't remember where you got the idea from," says Joseph Vincent, director of technical planning at Louisville, Ky.-based Humana, Inc.

What is quite clear, however, is that no matter what analysts say is happening in the industry overall, managers decide on their direction based on their own applications and internal needs. Langenbahn, for example, who runs a large, multilevel IBM Systems Network Architecture network with mainframes, minis and micros, perked up at the notion expressed by some analysts that one of those three levels can be eliminated. Going to a two-tier setup would save him a lot of money, but, he says, being able to do it really depends on the needs of Mead's specific applications, not on what is going on elsewhere.

Others echo that sentiment. When Gencorp, Inc. reorganized in the wake of a hostile takeover attempt, Linda George, the company's director of information services, needed to rethink her computer architecture. After carefully evaluating the Akron, Ohio, company's applications portfolio, she switched from IBM mainframes to "lots of PCs" and minis made by Wang Laboratories, Inc.

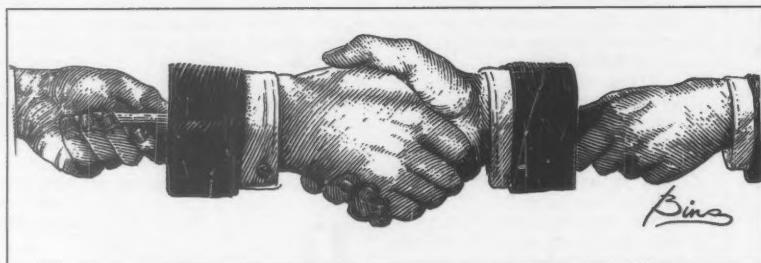
There is, however, no clean demarcation between information managers' plans for their company and consultants' views of where the industry is going. It is more like a continuous feedback loop or barbershop mirrors, whose opposing images bounce endlessly back and forth.

Portia Isaacson Wright, president of Future Think, Inc., points out that consultants' conclusions are developed for their subscribers only after speaking with countless users and vendors. When a consulting group asks 200 users for their opinions, for instance, "there could be 200 variations on a theme." That would be chaos for the managers. By "crystallizing the diverse opinions," she says, the analysts "smooth the whole process of decision making."

"The beauty of it all," she adds, is that each user then gets a report that is really a distillation of the views of many users. And round and round it goes. •

LANDSCAPE

The year of alliances makes for strange bedfellows



Market demands force many industry giants to link up

BY DOUGLAS BARNEY

Vendors are learning to play by a new set of rules. No longer is it acceptable for them to lock users into a totally proprietary system — it just won't sell. Instead, both hardware and software vendors are having to change the way they operate in order to meet user demands for the best overall solution and to allow incompatible architectures to work together.

The biggest shift in vendor operations has been the rise of so-called strategic agreements that hopefully turn into strategic relationships — which hopefully create strategic products.

Some strategic alliances work. Others fall apart because of the squabbling and political infighting that is the very nature of competition. What follows is a look at some of the most important strategic alliances, most of which have been announced within the last year or two. All of these fall into categories: It Worked, It Failed or Yet to Be Determined (YTBD).

YTBD: DEC and . . .

DEC and Tandy. Earlier this year, Digital Equipment Corp. conceded defeat in selling its own PCs. It tried the Rainbow,

which failed because it was incompatible with the standard IBM established. Then it tried with the Vaxmate, a network-oriented PC that failed because of its high price, lack of color and serious problems with overheating, all of which were well documented by the press.

DEC is preparing to take a fresh crack at this market by selling IBM PC-compatible machines custom-built by Tandy Corp. Details of the products will not be announced until early next year, and only based on those details can users and analysts gauge DEC's chances for success. But if the products and the prices are right, and if DEC salespeople are effective and add value such as advanced networking, DEC may finally succeed in the PC market. But if any of these conditions are not met, DEC will fail again.

Analysts say they believe that DEC may have finally hit on the right approach and that the company will work hard to make sure it succeeds. According to John McCarthy, director of professional systems research at Cambridge, Mass.-based Forrester Research, Inc., DEC will finally succeed simply because it will put in the necessary effort.

DEC and Compaq. Prior to the DEC/Tandy announcement, the minicomputer giant copped a deal with Compaq Computer Corp. This deal is much less ambitious than the Tandy arrange-

ment, essentially calling for cooperation to ensure that Compaq systems work effectively on DEC networks. If the companies work well together, Compaq machines will be highly compatible on DEC networks. Knowing Compaq, even if the two do not work well together, Compaq machines will be highly compatible on DEC networks.

The deal is viewed as a bit of a no-brainer, with little chance of failure.

DEC and Apple. DEC has been cranking out strategic alliance after strategic alliance, a real break with its proprietary tradition. One that caught a lot of attention was its alliance with Apple Computer, Inc.

The alliance was a recognition that VAX shops were being increasingly filled with Apple Macintosh computers. Because few of these shops were buying Vaxmates, it was no loss for DEC to endorse, support and help sell Macs.

In terms of lifting the visibility and respectability of the Macintosh, the agreement has been wildly successful, analysts say. But there is another, co-development aspect that has yet to be proven.

Apple and DEC are supposed to be developing tool kits that will provide tighter integration between Macs and VAXes. Until these are fully fleshed out, available and proven, the DEC/Apple alliance is YTBD. Whether it

succeeds or not, its importance has clearly been diminished, because DEC will soon be pushing Tandy machines, analysts argue.

Others YTBD

Sun and AT&T. This alliance has resulted in no product shipments, but the very announcement shook the foundations of the entire computer industry. Earlier this year, AT&T joined forces with workstation upstart Sun Microsystems, Inc. to jointly develop a version of Unix that will come complete with a graphical user interface called Open Look.

The agreement was supposed to create, once and for all, a single Unix standard. Instead, it splintered the industry into hostile opposing camps. AT&T, however, has been mustering its forces and now boasts support from Unisys Corp., NCR Corp., Amdahl Corp., NEC Information Systems, Ing. C. Olivetti & Co. and Toshiba America, Inc. This group, now dubbed Unix International, is gaining steam and may well steamroll the opposition.

OSF. The Open Software Foundation was created to blunt the effect of the AT&T/Sun alliance. The OSF draws together firms that compete against each other with venom and aims to develop an open, licensable version of Unix. The key players include DEC, IBM, Apollo Computer, Inc. and Hewlett-Packard Co. —

Barney is a *Computerworld* senior editor, microcomputing.

but, so far, no AT&T or Sun.

There is still disagreement as to whether the OSF will ultimately succeed. "One or two key defections and it's history," Forrester Research's McCarthy maintains. Other analysts, such as International Technology Group's Clare Fleig, say they believe the sheer weight of the players will ensure success.

Microsoft and IBM: So far so good. Microsoft Corp. Chairman Bill Gates must thank his lucky stars that IBM chose MS-DOS as the operating system for its original IBM Personal Computer. Gates parlayed that deal into a billion dollars worth of personal wealth and a company that sits at the very top of the PC software heap.

Gates has struggled to keep wily IBM on his side. He fought to get Armonk to support OS/2. It did. But the bigger challenge came on the interface side. Gates, a graphical user interface maven if ever there was one, battled tooth and nail to get IBM to implement Microsoft Windows as the user interface for OS/2.

IBM agreed, with one twist. Windows would have to be rebuilt, and IBM mainframe-oriented graphics technology would have to be added. In addition, Windows was not only changed, but renamed Presentation Manager.

Things are still looking relatively good. IBM has agreed to support a 32-bit version of OS/2, which is likely to keep the relationship strong for several more years.

But some cracks are beginning to emerge. IBM is licensing a user interface from Next, Inc. that, by its very definition, will compete with Presentation Manager.

"Without Microsoft, IBM would just be a ship in a storm without an anchor," McCarthy says; he argues that the alliance will remain strong.

Ashton-Tate, Microsoft and Sybase: YTBD. Critics were immediately skeptical. How could two software companies that were making clear moves into each other's markets possibly agree on anything? They asked. Well, they did agree to co-market some multiuser database software called SQL Server, and Ashton-Tate, Inc. did agree to design Dbase IV to act as a front end.

But SQL Server ship dates have slipped, and Microsoft has reportedly been displeased with Ashton-Tate's progress on Dbase IV 1.1, the front end to SQL Server. The whole deal almost fell apart after a well-publicized spat between Bill Gates and Ashton-Tate Chairman Ed Esber.

Gates' temper flared after he heard that Ashton-Tate planned to distribute SQL Server through Novell, Inc. Novell is Microsoft's key rival in the local-area network operating systems market, and letting such a rival resell a Microsoft product simply would not do. Gates forced Esber to call off a press conference and cancel the agreement with Novell.

Still, the organizations insist that all is well and that the relationship between Microsoft and Ashton-Tate is strong. But other cracks are starting to appear. Ashton-Tate has licensed another multiuser engine from Interbase and has pledged to support OS/2 Extended Edition, which by definition competes with SQL Server.

On the other hand, Microsoft is busy readying its own end user-oriented PC DBMS that will work with SQL Server. This, by definition, competes with Ashton-Tate's Dbase. Can these two part-

ners/competitors hang together? Only time will tell. For now, their relationship is rated YTBD, and the product is rated Yet to Be Delivered.

IBM/Stratus: YTBD. This agreement is one of a kind for IBM. The deal that calls for IBM to resell Stratus Computer, Inc. fault-tolerant computers — renamed the IBM System/88 — is a radical departure for the mainframe monolith, which develops most of its own systems. But that departure has gotten IBM into a lucrative and growing fault-tolerant market and has made up some 25% of Stratus' revenue, providing much-needed cash for development and growth.

Analysts say the deal is working out well and point to IBM's own scaled-back fault-tolerant development efforts as

proof. So far so good.

EISA: YTBD, but looking rough. At first blush, many analysts thought it looked great: Compaq and eight other PC clone vendors rallied together to develop an alternative to IBM's Micro Channel Architecture bus. These nine firms that make up the Extended Industry Standard Architecture (EISA) pledged to work together on a 32-bit bus that would be available in late 1989.

But savvy observers and users spotted the chink in the armor right away. Some questioned how competing vendors could work together, particularly when there was no defined hierarchy for decision-making. These same critics pointed to a 1986 effort at bus standardization spearheaded by Phoenix Technologies Ltd.

that fell apart due to the squabbling of the competing firms involved.

Bottom line for EISA is Yet to Be Built. Because so many EISA members are developing Micro Channel products, many analysts now say they believe that the EISA bus will never be built.

Strategic alliances provide a host of benefits for vendors. For some, it is access to technology and new markets. For others, it satisfies the need for publicity. Users also have a divided lot. Some alliances provide users with products that are impossible to create any other way. In some cases, the fruit of alliances is the bridging together of incompatible systems. But far too often, alliances leave users with nothing but disappointment and thoughts of what might have been. •

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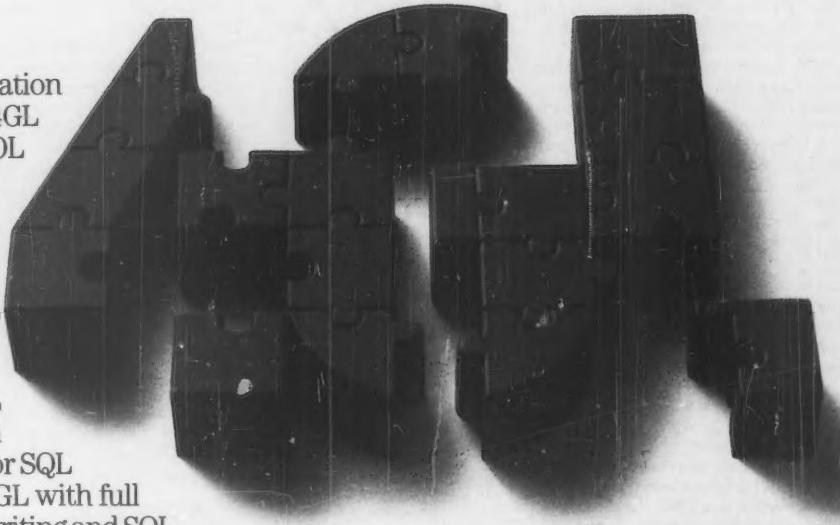
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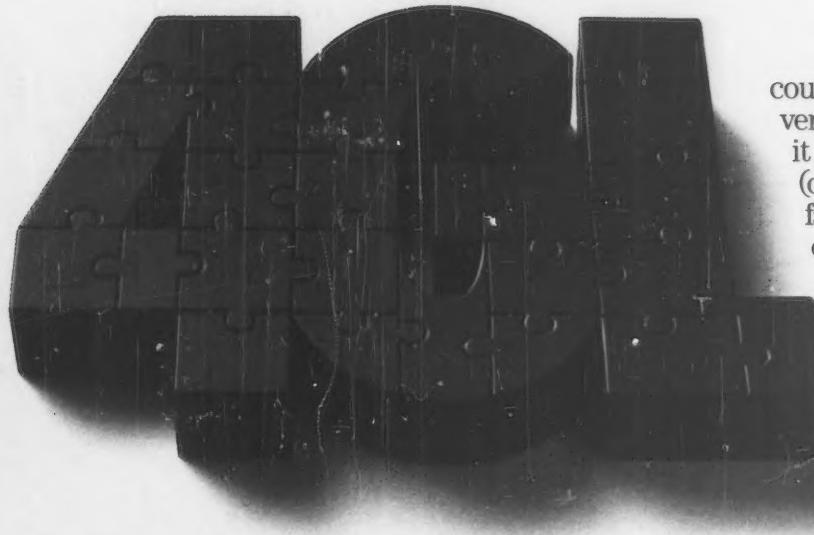
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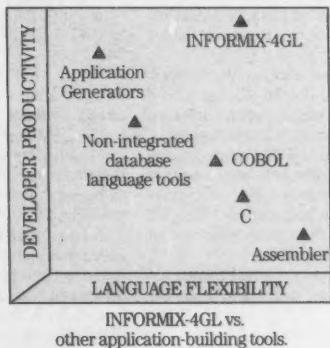


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Klooge!

BY GLENN RIFKIN

Ebenezer Klooge lay in his majestic bed, tossing and turning as the wind howled outside his window. It had not been a good day at the shop. The year was winding down; in fact, it was Christmas Eve, and Klooge's staff had made not a dent in the massive backlog that they had started with last January.

Indeed, the addition of the new whiz-kid applications specialist, Bob Batchit, had not produced the expected benefits at all. If anything, the backlog was worse, though Klooge had pushed Batchit without mercy. The pathetic propeller-head might still be at his terminal for all Klooge knew.

So what if it was Christmas Eve? Bah, humbug on all this sentimentality, Klooge thought. The CEO was even meaner than he was. **"COMPETITIVE ADVANTAGE, KLOOGE!!! NOW**

Rifkin is a Computerworld senior editor.

THAT'S WHAT THIS IS ALL ABOUT, MY GOOD MAN. A productivity increase is really what it's all about, Klooge sneered — a productivity increase, nuts to eggnog. Oh, how he loathed spineless Batchit, who had crept up to Klooge's desk that very afternoon.

"Uh, pardon me, Mr. Klooge, sir. But may I have a word with you, sir?"

"What do you want, Batchit?" Klooge had barked.

"Well, sir, I was wondering, uh, I mean, I was hoping to . . . uh, leave a bit early today. You see, it is Christmas Eve, after all, and my family has a goose cooked, and my little son Micro Tim is ill and could hardly play Nintendo this . . ."

"BAH, HUMBUG!" Klooge had screamed. "Back to your workstation or your goose *will* be cooked. You're already getting the whole day off tomorrow, which means bringing the system down *tonight*. Do you realize that we are three months behind schedule on applications requests? That my stat mux is on the fritz, and the CEO wants to

know what we're doing about DB2? And they canceled NCC, for crying out loud, so I didn't even get to Vegas this year! Back to your desk, you sniveling bit-sniffer, or you can call Robert Half next week."

And off slouched the stooped, sad-eyed Batchit. Klooge looked at his multifunction 386-chip wrist computer and frowned.

"Bah, it's 5 o'clock and all these geeks will want to leave just because it's Christmas Eve," he had snarled. "Well, I'll get another good hour out of them, anyway."

With that, he had turned toward the staff and bellowed, "CODE, CODE, CODE, GIVE ME COOOOOODE!!!"

Now, as he tossed in his bed, Klooge pulled his nightcap down snugly around his ears. "Damn drafty in here," he muttered as his eyelids drooped. Moments later, the sash to his bedroom window flew open, and the curtains unfurled in a whoosh of cold night air. Flakes of snow swirled into the room as Klooge leapt upright in bed, his eyes wide with fright.

"What is it? Who's there?" he screamed.

Into Klooge's room jumped Charles Wang. "Frank Dodge, I want your company!" he yelled.

"WHAAT?" Klooge yelled back.

"Isn't this McCormack & Dodge?" Wang asked as he floated above Klooge's bed.

"No!" Klooge replied.

"Ooops, my mistake. Wrong morality play," Wang apologized as he leapt out the window into the night.

Klooge huddled under the bedclothes and shivered. "I have to cut out the pizza with onions before bed," he said to himself.

Fitfully, Klooge drifted off to sleep. The electronic grandfather clock beeped three times in the pitch dark. Suddenly, the window flew open again; wind and snow swirled into the room. Klooge hardly opened an eye. "Where's my Maalox?" he said, groping toward his nightstand.

A huge, ghost-like figure floated in on the wind. The figure wore a white smock and had a plastic pen protector in his pocket. His hair was disheveled, and

he wore thick, dark glasses.

"EBENEZER KLOOGE!" the figure bellowed.

Klooge sat bolt upright in bed. "What is this — Grand Central Station? Hey, don't I know you?" he demanded of the apparition, with more than a tinge of fear in his voice.

"What a dummy. Sure you know me. I'm your old DP manager, Jack Nerdley."

"You look awful, Jack."

"I'm a ghost. I've been dead for seven years. If you were doomed to wander from data center to data center for eternity with spaghetti code and batch cards tied to your ankles, you wouldn't look so hot, either."

"Good point, but you didn't look so great when you were alive."

"Just my luck, I get to haunt a wise guy. Listen, buster, I got news for you. You're next, Mister Hotshot CIO. Took my desk and kept yelling 'CENTRALIZE, CENTRALIZE!' Well, you're in for a long night here."

"What do you mean?" Klooge asked, his eyes widening.

"You'll see. The big guy is sending three spirits down here to see if they can straighten you out. The word is that you are giving the information age a bad name. Keep it up and you'll be schlepping around with me for the next billion years."

"Right, and I'm sure Tom Watson Sr. will drop in for tea tomorrow night," Klooge said.

"OOOWWWWWWW," Nerdley howled. "Boy, are you gonna get it. They'll probably chain an old 1401 to your ankle and make you lug that around for eternity. Anyway, I'm outta here. Just thought I'd warn you. Good luck; you'll need it."

With that, Nerdley backed slowly out of the room and

through the wall. Klooge lay back under his blankets and shivered. "This is giving me a headache," he moaned and then promptly fell asleep.

Inexplicably, the beeper on his digital watch signaled 1 a.m., and Klooge opened a bleary eye. At the foot of his bed was a small figure feverishly counting a large stack of punch cards. It appeared to be sitting but was actually floating transparently above the bed.

"Let me guess," said Klooge. "Ghost Number One."

"You hearda me?" the ghost replied, surprised. "I thought I'd surprise you, get a few screams and squeals. Just for laughs."

"I knew I should have spent Christmas in Florida," Klooge sighed.

"IAM THE GHOST OF SYSTEMS PAST!" the apparition replied. "I've come to take you back, back, back to your own past. Come, there's no time to waste. The time machine is double-parked."

"Get outta here," yelled Klooge. "Johnson, right? You're the wise guy from telecom. Nice outfit, you clown. Now beat it."

"KLOOGE, COME WITH ME!!!" the ghost commanded.

And with that, Klooge rose involuntarily from the bed, his nightshirt fluttering in the wind. "WHOOAAA," he wailed as he whooshed out the window close on the heels of the ghost.

Huge sand-filled egg timers and gigantic silicon chips whirled by as the wind howled and Klooge twirled along. "Nice effect, huh?" the ghost asked.

Klooge was wide-eyed with fright. "Where are we going?" he begged.

"We're going back to find out how you got to be such a great



The Ghost of Systems Present

guy," the ghost said.

Before he could respond, Klooge and the ghost appeared in a glass-enclosed room, the air-conditioning turned up high. A group of programmers sat in rows behind a rotund, short, jolly-faced man in a white smock. The room was dominated by an IBM 7090 and a cluster of huge card-punch batch machines.

"Why, that's old Wizziwig, my first boss," Klooge cried out. "And that's me as an entry-level programmer. Wow, did I look like a nerd or what?"

"They can't see or hear us," the ghost explained.

Old Wizziwig stood and announced loudly to the room, "Come, my young technoids, it's Christmas Eve and you're already cross-eyed from too much programming. Let's have some eggnog and celebrate."

Young Klooge rushed over to Wizziwig breathlessly. "But Mr. Wizziwig, I've almost finished this piece of code. Another three hours and I'll have it."

"Lighten up, Klooge," Wizziwig laughed. "It's Christmas Eve, and even the accounting department is going home. It's time to enjoy the season."

Young Klooge was visibly disappoited but struggled along to the party. There, a pretty young woman — the data processing department secretary — came up to him. "Oh, Ebenezer — God that's a weird name — but hey, do you want to dance?"

"Sorry, Darlene, I'm totally consumed by this I/O problem, and dancing would just cause unwanted downtime," young Klooge replied.

"Jeeesh, what a geek," Darlene sighed and turned away.

Old Klooge turned to the ghost. "Please, I can't stand it. Take me away from here."

"Can't stand seeing yourself

blow a chance at happiness, huh?" the ghost asked as he whisked Klooge into the night.

"Are you kidding? No, I can't stand to see a programmer wasting time at a party."

With that, the pair landed in a boardroom in a big city several years later. Three young businessmen were meeting. Klooge recognized them as former co-workers from Wizziwig's.

"Hey, it's Edson, Neidenfer and Baker," Klooge marveled. "Those guys started that billion-dollar software company. What are we doing here?"

"Just listen," the ghost said.

The three men were looking at a business plan. "So do we ask Klooge to join us?" Edson asked.

"I don't know," Baker said. "He's such a jerk."

"Yeah, forget about him," added Neidenfer. "He's a good programmer, but no one can stand him. He's so obnoxious."

"OK, he's out," Edson agreed. "Now let's talk about venture capital."

Klooge stood transfixed in horror. "Oooohhh, take me outta here. I coulda had founder's stock, I coulda been rich. Oh, that hurts. I get the picture."

Suddenly, Klooge found himself swirling forward through time, and then he landed in his bed. Before he could think about what had just happened, he fell into a deep sleep.

The sound of a loud dot matrix printer awakened him with a start. Another ghost was sitting at a terminal as stacks of green bar paper poured out of a nearby printer.

"Whatsit . . ." Klooge mumbled sleepily. "It's just me, the Ghost of Systems Present," the apparition replied.



The Ghost of Systems Past

"Aw gee, and I was hoping it was John Sculley and Steve Jobs," an irritable Klooge retorted.

"Just my luck, a wise guy — and on Christmas Eve, yet," the ghost said, looking to the ceiling. "Why don't I get the good stuff, like *It's a Wonderful Life*, or *Miracle on 34th Street*? Oh well. Come with me, turkey."

With that, the ghost reached out and touched Klooge's collar and they were whisked off into the night.

They landed instantly outside a cottage in a run-down neighborhood.

The ghost took Klooge through a wall of the cottage into a tiny, bedraggled living room.

Inside, a fire glowed in the fireplace while a smiling woman sat in a rocking chair stringing popcorn for a scraggly Christmas tree. A threadbare rug covered the living room floor as three children lay on their stomachs watching reruns of *The Brady Bunch*.

"When will Dad and Micro Tim get home, Mom?" one child asked.

"Soon, I hope," the woman replied. "It's getting cold out there, and Micro Tim is so frail."

"My god," Klooge whispered. "This is Bob Batchit's house. What are we doing here?"

"You needn't whisper; they can't hear you," the ghost said.

The door to the house suddenly opened, and in walked Batchit with his young son perched on his shoulder. Batchit was crestfallen.

"Oh, Bob, is it bad news?" his wife asked.

"The memory upgrade cost too much," he responded.

The family gathered around the father and child. Tears rolled down their faces.

"Poor, poor Tim," they cried. "He's only got 128K on his PC. He'll never be a hacker now."

"It's OK, Dad. God bless us, one and all," said Micro Tim.

Klooge watched in horror. "Take me away from here, ghost," he implored. "If only I could help them out. I could have of-

fered some of the free cycles on the mainframe for the poor kid."

With that, Klooge was whisked back to his bedroom. Shivering and irritated, he slipped under the covers, but he couldn't sleep.

"I wonder if Max Hopper has nights like this," he thought to himself.

Just as he was dozing off, Klooge heard a soft but pained moaning sound. He opened one eye and saw the third ghost reading the *Daily Racing Form*.

"Ooooh," the ghost moaned. "I can see the future, but I forgot to put \$10 on Blue Moon in the sixth at Hialeah? How stupid can you get?"

"Let me guess — the Ghost of Systems Future?" Klooge suggested.

"You got it, ace. Let's put on those traveling shoes." And with that, Klooge was whisked off into the bleak night.

"Want to know the next big buzzword?" the ghost asked as they went.

"Not particularly," Klooge replied.

"Ok, fine, how about DEC's revenues for 1998?" the ghost countered.

"How about telling me if my capital expenditures are going up for the next five years so I can write a budget?" Klooge asked.

"No can do. The SEC keeps a close eye on stuff like that, you know."

Suddenly, the ghost and Klooge were plunked down in Bob Batchit's living room again. The family sat sadly around the dining-room table. No one spoke. Off in the corner, a dusty Tandy PC sat next to a



The Ghost of Systems Future

tiny crutch.

Klooge stared in dismay. "Oh no. Not Micro Tim . . ." He looked at the ghost, who just looked away.

"Help me, ghost. Is this what shall be or what might be?" Klooge begged.

With that, Klooge was whisked off again. In a blink, they landed outside his office.

"What are we doing here?" he asked.

The ghost just nodded to three people in his office. One was going through Klooge's desk drawers, another was seated at his terminal, and a third was on his phone.

"Yeah, move Johnson's stuff in here this afternoon. We'll get rid of his junk this morning," the man said into the phone.

"So I hear the new guy is getting twice the salary," the first said. "Well, he'll easily deserve it if all he does is act civil to the staff. No one is crying over Attila the Hun."

Klooge looked wildly over to the ghost. "Hey, spirit, this is a joke, right? Come on, good one, you got me, ha ha. What a killer."

The ghost simply shook his head and whisked the pair off to a downtrodden cemetery.

A cold wind blew across the bleak sky and a single bare tree stood pathetically above the mostly abandoned graves. A pair of mobile robots with shovels were just filling in a new grave.

"Wow, robot gravediggers, great idea," Klooge said to the ghost.

"Just listen," the ghost replied.

As the robots tamped down the final shovelfuls of dirt, one started to beep and buzz.

"Nobody showed up for this stiff," it announced.

"Manager said this one was a real los-

er," the other answered in a metallic, digitized voice.

"Let's get out of here," said the first. "This place depresses my architecture." With that, it stuck a small headstone in the dirt and they wheeled off.

The ghost pointed to the headstone, and Klooge, shivering and scared, got on his knees to get a closer look.

"Oh, no," he wailed as he cupped his face in his hands. "What a drag." On the headstone was one word:

KLOOGE

"Wow, I was hoping to retire to Miami Beach," Klooge said to the ghost.

With that, the ghost lifted his arms and Klooge zipped away back to his bed.

"Zowee," he yelled. "I'm back." He opened his window and leaned out. Down below was a young lad with his collar turned up against the cold.

"You, boy!" Klooge called. "What day is this?"

"Where are you from — Mongolia? It's Christmas!" the boy yelled back.

"What a nice boy, bright, spirited," Klooge said. "Listen, wise guy, I know it's Christmas. You don't know what kind of night I just had.

Anyway, you know the Businessland store down on Grange? I want you to run down there and buy a PS/2 Model 50 with a laser printer and have it delivered to the Batchit house at this address. Buy a Nintendo game for yourself."

With that, Klooge dropped his Mastercard down to the boy. "How do you know I won't take off and charge a new BMW with this?" the boy called.

"Oh my good lad, it's Christmas! The world is beautiful, I'm happy to be alive. And besides, I'd find you and break your little arm. Now be off with you."

Klooge ran to his closet to dress. He hummed loudly to himself. "Oh, it feels so good to not be a jerk. I can't wait to get to Batchit's house and see the look on Micro Tim's face when he sees the new computer."

Klooge walked joyfully through the streets, wishing everyone a Merry Christmas. When he got to Batchit's cottage, he saw the delivery van pulling away.

The family leapt for joy when Klooge came in their house. Bob Batchit came up to him.

"Mr. Klooge, this is so generous, so unexpected. What . . ."

"Don't say anything, Batchit. Just enjoy it. I want that boy of yours to become a world-class hacker," Klooge said.

"I've turned over a new leaf," he bubbled on. "I'm going to order workstations for everyone in the company. I'm going to give up control of the network. I'm going to offer more applications to the end users. I'm going to DE-centralize."

"Wow, and are you going to admit that your five-year strategic IS plan was a flop?"

"Don't get carried away, Batchit. This 'good will' stuff only goes so far." •

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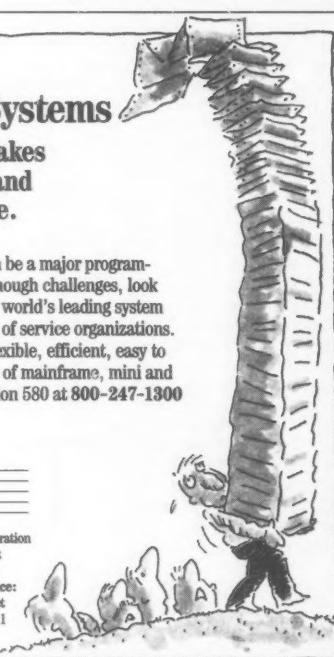
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SYSTEMS & SOFTWARE

SOFT TALK

George Coleman

Normalizing not only way

In recent months, my name has been mentioned twice in this column regarding a study on data normalization that I conducted [CW, Oct. 17 and Nov. 28]. This leads me to address several points.

First, I certainly did not work alone on the normalization study. It was a joint effort with David Young of AMDahl in Sunnyvale, Calif., and others assisted as well. Furthermore, the normalization experiment was only one of several performance aspects of IBM's DB2 that we measured.

As to the issue of whether denormalization is good or bad, the truth is that almost all experienced mainframe database application developers recognize that normalization is not the last step in the process of database design.

If a database application does not perform at acceptable levels of response time, and if attempts at tuning it or "throwing hardware at it" fail to solve the problem, the application must be redesigned. This usually means — and this is especially true in on-line realization applications — that some data has to be denormalized.

In his column, Remon Lapid cited some excellent reasons that denormalization can cause problems; all the reasons concern changing data or the structure of data. But that does not mean that all physical data designs should be normalized. It does mean that decisions

Continued on page 64

IBM, DEC cut deal

DEC gives nod to IBM to supply 3480 drives

BY ROSEMARY HAMILTON
CW STAFF

Apparently, tape drives make strange bedfellows.

Digital Equipment Corp. and IBM recently signed a contract that will provide DEC with IBM 3480 tape drive products.

DEC said it will use the drives as the basis of a new tape subsystem. By using the IBM technology, DEC can provide customers with data interchange between DEC and IBM systems, the spokesman said.

The IBM 3480 Magnetic Tape Subsystem is a standard tape cartridge product used in IBM mainframe shops. Other companies such as Storage Technology Corp. also supply mainframe users with 3480-compatible products.

According to a DEC spokesman, several DEC customers who also have IBM equipment

have been requesting 3480-compatibility from DEC. Eventually, the DEC product would allow users to pull a tape cartridge from a DEC system and load it onto an IBM system, the spokesman said.

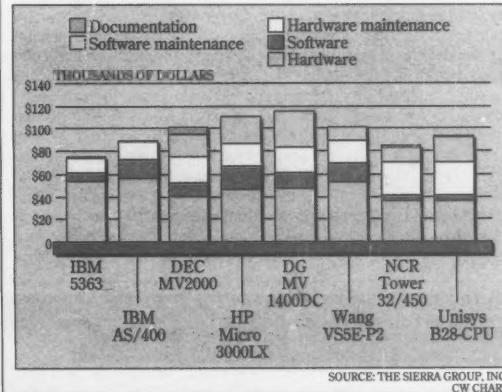
DEC provides a reel-to-reel tape drive subsystem for its high-end users but does not now offer a tape cartridge product.

Neither company would reveal financial details of the agreement. The DEC spokesman said the deal is not an exclusive arrangement between IBM and DEC. While IBM is the only 3480 drive supplier that DEC is now working with, DEC has not ruled out working with other suppliers in the future, he added.

DEC would not say when its tape subsystem would be available. The spokesman said DEC will build all other components for the subsystem to work with the IBM drive.

Data View

What does your departmental system cost?
A comparison of the five-year cost of ownership for eight-user systems



Keeping an eye on all the important spots

BY JAMES DALY
CW STAFF

From a distance, the images resemble the impressionistic brushwork of a Degas or Cezanne. Splashes of reds tangle with blues. Greens and yellows pepper a brown field.

But move a little closer and the amorphous shapes slowly make an odd sense. Harbors, cornfields, houses — even the white line running down the center of an airport runway — appear like figures through a haze.

The bizarre and beautiful images are the result of satellite imaging using a remote-sensing application built around a Digital Equipment Corp. Vax-cluster system at the Spot Image Corp. At the nerve center of Spot's headquarters in Toulouse, France, are three VAX processors — an 8530, VAX-11/750 and 11/785 — and two DEC HSC50 storage controllers.

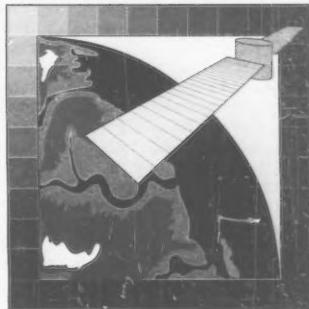
Every surface of the earth receives solar radiation that is either reflected or absorbed and emitted in specific wavelengths. These spectral signals are recorded by satellite-mounted high-resolution sensors sent up by Spot Image, with the DEC iron shaping the gathered information into photograph-like images.

Spot's remote sensing techniques have already hit it big in several areas. Geologists can interpret the subtle variations in color to discover depression patterns and aid exploration, city planners can use it to make maps

that are more precise, and the military can get a high-flying view of the world's hot spots.

The process begins when data is garnered in "image swaths" that represent a section of the earth 60 kilometers wide and as much as 12,000 kilometers long, said Clark Nelson, director of corporate communications at Spot Image's U.S. subsidiary in Reston, Va.

Data is then transmitted from the satellite to one of several



Spot Image satellite scans the Earth

Decnet-linked receiving stations positioned around the world. After the data stream is recorded on high-density digital tapes (HDDT) at 50M bit/sec., the tapes are transported to another Spot Image facility for photoprocessing.

When the firm receives a customer order, it reviews its catalog of HDDTs. If the image is not available, the satellite must be positioned to image the appropriate area.

If the imagery is already available on tape, the production process begins. The appropriate portion of the HDDT is located

Continued on page 64

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SOFT NOTES

Britton Lee seeking new identity

The name Britton Lee will take a low profile as part of a new marketing strategy being undertaken by the Los Gatos, Calif.-based vendor of database hardware and software.

Britton Lee, Inc. recently renamed its product line Sharebase and said the company will henceforth go by the trade name Sharebase From Britton Lee, Inc. The new business identity program is intended to stress the company's production-oriented SQL relational database management software as its principal product. The firm is renaming itself and its products to emphasize

size that it supplies both hardware and software, said President and CEO John Cavalier.

The International DB2 Users Group was founded recently in Chicago. Intended for DB2 users regardless of mainframe platform, the organization was created to provide a forum for exchanging ideas and experiences and increasing productivity for DB2 users internationally, the group said in a release.

The users group's 1989 conference chairman is Ken Paris of Peat, Marwick, Main & Co. in Montvale, N.J. The group's first

international conference will be July 9-12 at the Hyatt Regency in Chicago.

As the Unix dice roll, **Oracle Corp.** is hedging its bets. The Belmont, Calif.-based vendor of DBMS software and services said it has joined both the Open Software Foundation (OSF) and Unix International, Inc. Unix International, once called the Arches Group, is led by AT&T and seeks to establish its Unix System V as a standard. OSF is building its environment around AIX, IBM's version of Unix.

Coleman

FROM PAGE 63

concerning denormalization must be made with care. Anyone who understands the data can create a normalized design; denormalizing data also requires an understanding of how it is used.

Relational database applications can perform well, but with today's technology, this can happen only when the number of blocks of data that any transaction accesses is controlled. This control may occur naturally with the process the transaction must perform — for example, display a specific record on the user's screen — or may occur in the table design, as when all tables are sufficiently small. Otherwise, the control must be artificially built into the application program or the table design.

Quite often in the mainframe environment, a normalized design does not perform well, even when the cache memory or buffer pool is increased or the speed of the processor is increased. The only choice then is to denormalize the data some-

where. As Lapid made clear, denormalization decisions usually involve trade-offs between flexibility and performance.

Such decisions are not always made easily. In fact, denormalization is really an extension of the art of normalization. Normalization requires an understanding of the data, but intelligent denormalization also requires an understanding of the flexibility requirements of the data; awareness of the update frequency of the data; and knowledge of how the database management system, the operating system and the hardware might work together to deliver optimal performance.

The simple truth is that denormalization is an economical and technological necessity; it must be seriously studied. A well-performing database cannot be designed strictly within the confines of relational theory. It can only be accomplished with an awareness of the total environment in which it must operate.

Coleman is a staff systems engineer for Andahl Corp. in Chicago.

Eye on

FROM PAGE 63

and transferred at a rate of 400K bit/sec. to a VAX processor, where its contents are decoded. The raw information is then fine-tuned and enhanced to remove distortions caused by the earth's curvature.

Once corrected, the processor will store the output on either 1,600 or 6.25K bit/in. computer tapes; it is then directed to Vizir, a laser film writer from the French firm Sepimage, to produce photographic prints or transparencies.

The Vizir is also controlled by the Vaxcluster system, which instructs the film machine on how to translate digital information and render the image. The process takes about 10 minutes.

While the federal government accounted for nearly 70% of Spot Image's business in 1987, Nelson said that figure has been reversed so that seven of 10 sales came from the private sector in 1988. "It has ceased to be a highly specialized requirement," Nelson said.

the system.

Samaha is using AI Corp.'s Knowledge Base Management Systems (KBMS) tools to create his application. KBMS is written in C and is intended for IBM mainframes. Southern California Edison will run its application on an IBM 3084 mainframe.

Samaha interviewed his expert, a senior systems operations engineer, for a total of 16 hours and derived a total of 650 rules that govern the predicting of power needs. "The [human expert's] knowledge is at a very high premium. There are fewer than four or five individuals that could do his job. The job has demands unique to Southern California," said Samaha, explaining that an expert imported from New York would be sensitive to different variables and could not function as well.

Southern California Edison in Rosemead, Calif., one of the top five utilities in the U.S., is building an expert system to predict summer electrical consumption in the greater Los Angeles area.

The load forecaster is intended to anticipate maximum electrical consumption 24 hours in advance of use.

"That is important because you need the resources for the next day's load. Otherwise, you'll have a blackout or brownout," said Mark Samaha, an applications engineer at the utility who is working on the system.

Samaha has been hard at work recording the wisdom of a human expert, around which he is building the system. If all goes well, the computerized expert will be lending its advice to the utility by this summer.

Watching the heat

The summer weather is a major determinant of the region's power requirements, and rules are typically applied to weather information.

In a rudimentary example, the expert looks at a weather report for the next 24 hours.

If the prediction is for 95 degrees and high humidity, compared with 90 degrees with pleasant humidity levels today, then the area's power plants must produce a certain amount of additional electricity.

During the coming summer, both the human expert and the computer expert will be used in parallel and their predictions compared against actual needs. The results will be used to fine-tune the system, Samaha said. The \$50,000 system should pay for itself after its first summer of use, he said.

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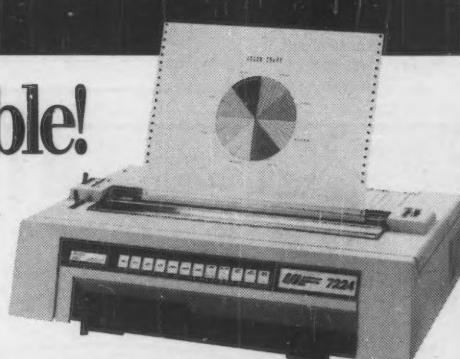
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November 7
Front page
coverage



November 14
Front page
coverage



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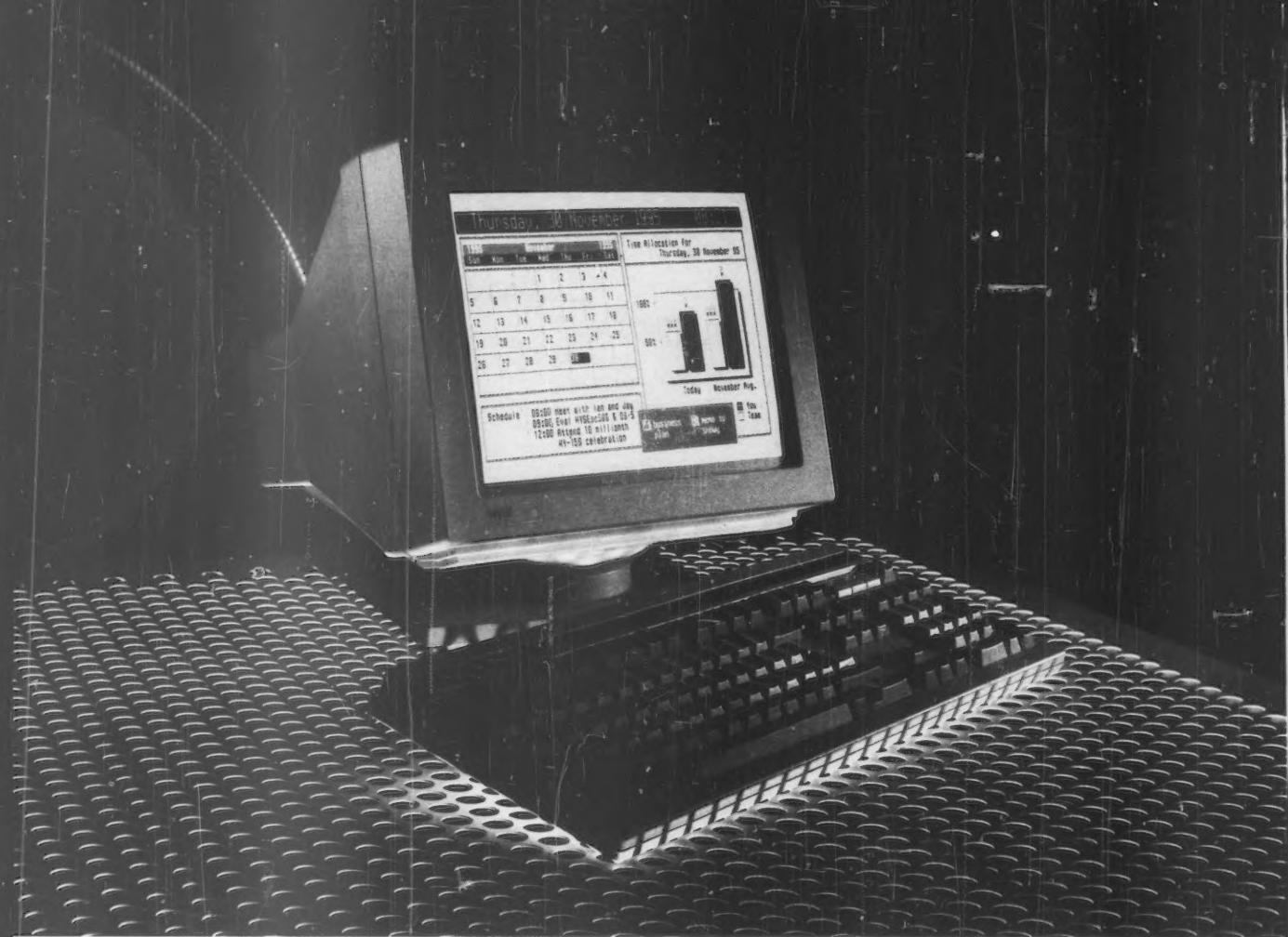
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No coverage

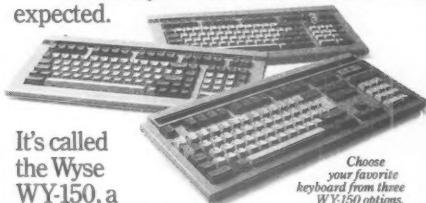


The Terminal Of The '90s Has Arrived A Bit Early.

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The WY-150 also sets new ergonomic standards. Its 78 Hz refresh rate eliminates any hint of flicker. Just as overscanning and a bezel that matches the soft, paper white phosphor erase distracting borders. (Amber and green phosphors are also available.) The oversize 10x16 cell makes each crisp character stand out vividly.

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MICROCOMPUTING

MICROBITS

Douglas Barney

Waling on a Blue whale



Big Blue whale feast: IBM's Personal Computer strategy may be starting to work too well. Sick of getting trounced in the commodity-style PC price wars, the company fashioned a great plan.

It got itself a new bus architecture and lost a whole lot of market share.

Like a pool hustler letting the bumpkins win for a while, IBM made its competitors over-confident. They thought the industry giant was done for as a major PC player. Their mistake was thinking that the rules and ruler of the PC game had changed. Meanwhile IBM, as the only Micro Channel supplier, was feverishly locking competitors out of its key accounts.

Then competitors made the bigger mistake of taking on IBM in public and then mimicking the IBM architecture with the Extended Industry Standard Architecture (EISA) bus. These folks didn't realize that you don't beat a market dominator with a slap in the face. Instead, you fall in line and do exactly what it does — except do it better.

Departing from IBM's PC
Continued on page 68

Flopticals: New PC backup?

Insite Peripherals creates a PC disk drive using optical technology

BY JULIE PITTA
CW STAFF

SANTA CLARA, Calif. — A flexible disk drive with a sprinkling of optical technology may one day replace tape drives as the backup method of choice for personal computers. With its relatively low expected retail price, the drive may eventually provide some PCs that do not have backup with an extra measure of protection.

Insite Peripherals, a start-up company located here, has created what Insite President and co-founder Jim Adkisson calls a "floptical" disk drive. To achieve higher track density, In-

site inscribes a standard 3½-in. flexible disk with an optical servo track — a strip of optically recorded data.

The closed-loop optical servo guides the drive's read/write head so that it follows the magnetic data tracks more precisely than it does with standard floppy disks. The drive's read/write carriage is equipped with an LED and magnetic recording head.

The LED reads the track while the magnetic head reads the data. As a result, more data can be squeezed onto the Insite drive than on standard floppies, Adkisson said.

The Insite Model 1325 flopti-

cal disk drive boasts a track density of 1,250 tracks per inch, compared with 48 and 135 tracks per inch for traditional floppy drives.

More tracks, more bites

While a standard high-density 3½-in. floppy drive offers at best 1.44M bytes of storage capacity, the Insite drive offers 20.8M bytes, he added.

It may be quite some time before users see any Insite drives installed in a PC. Production will reportedly begin in the spring, and PC vendors will most likely wait before gambling on using such a product. The most likely source will be computer resellers.

The drive should sell to end users for less than \$500, Adkisson said. A 40M-byte data cartridge drive sells for a price of about \$300.

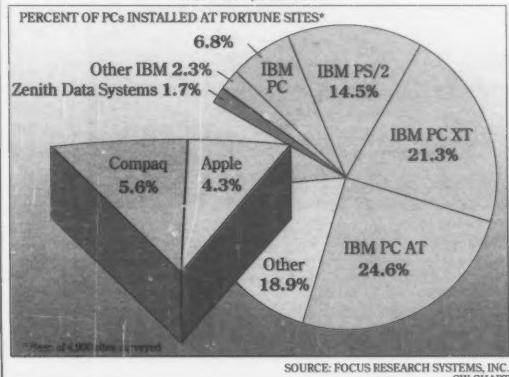
However, Insite is still "cleaning up some technical issues," Adkisson noted. He de-

Continued on page 68

Data View

Census says ...

Apple and Compaq share scraps in the IBM-dominated Fortune 1,000 market



Intex's Panorama lets you see the whole show

BY WILLIAM BRANDEL
CW STAFF

Spreadsheet users who want to see the cause and effect of their transactions can now use a product that gives them the whole picture.

Offered by Intex Solutions, Inc. in Needham, Mass., Panorama enables the viewer to pan a screen to observe all data movement and transactions as they occur.

The package also enlarges the viewing capacity on the screen to include zoom windows. The windows display the accounts that will be affected by the given spreadsheet transaction. Users can simultaneously see where their data block has gone and which account has been affected by any particular spreadsheet manipulation.

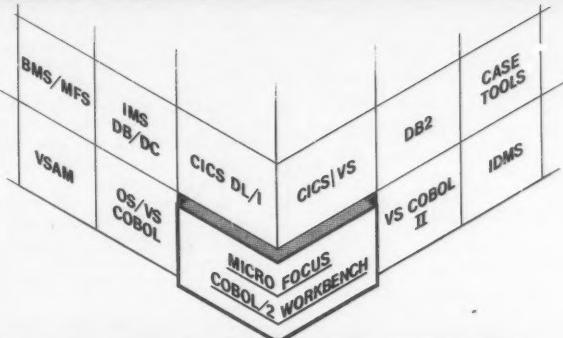
For example, if a 15% salary increase is given to an employee, the user can see how the increase directly influences cash flow, the balance sheet and anticipated annual income budgets in the zoom window while also viewing the 1-2-3 spreadsheet. Panorama also includes a mouse option.

The package includes its own driver and runs with IBM's Color Graphics Adapter, Enhanced Graphics Adapter and Hercules Computer Technology, Inc. and Compaq Computer Corp. screens.

It is compatible with Lotus Development Corp.'s 1-2-3 Version 2.0 and higher and all versions of Lotus' Symphony.

The product is currently priced at \$95 plus shipping but is scheduled to rise to \$145 beginning in May.

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MICRO FOCUS®
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Barney

FROM PAGE 67

bus direction was a major blunder, but it may not be too late to return to the old ways of competing with IBM. It's simple. Let IBM set the standard (the Micro Channel) and then go see someone, such as Phoenix Technologies, that will help you legally duplicate it.

Next, kick the hell out of IBM with lower prices, more features and a friendlier approach. Meanwhile, keep the older stuff on the market and sell it cheap. Do it right, and users will love you while IBM learns to hate you.

Cloners should remember that IBM is still a big Blue whale. It's strong all right,

but it doesn't turn so well. With the right strategy, a few PC sharks can easily slip underneath that Blue wad of blubber and do what cloners used to do — snack on IBM's entrails.

But cloners need sharper teeth, like cheaper Micro Channel machines, as well as an aggressive stance toward the future. Then we can all sit down and enjoy a nice meal at IBM's expense.

Tandy did it. Critics have been speculating that IBM's Micro Channel Architecture was impossible to fully clone and argue that so-called bus-mastering products would make the clones crumble.

That has led to speculation that EISA was formed because cloners realized the Micro Channel was impossible to duplicate.

WITH THE right strategy, a few PC sharks can easily slip underneath that Blue wad of blubber and do what cloners used to do — snack on IBM's entrails.

That is apparently not the case with the Tandy 5000MC. Phoenix Technologies, which helps compatibles be compatible, has been testing the 5000 with bus-mastering products and reports that all's well that runs well. If Phoenix says the Micro Channel is clonable, then it is.

The straight story on Magellan. Lotus has never done well selling software that lists for less than \$495, but it hasn't given up trying. Early next year, the company will announce and ship (now there's a novel idea) Magellan, a \$149 package that provides users with a more intuitive way of searching through files for information.

With Magellan, users can enter a number of words that may be found in the file. After locating the right file, users can bring it up, along with the application, with one keystroke. Magellan also includes DOS shell capabilities, a macro language and tree-like directories.

Barney is a *Computerworld* senior editor, micro-computing.

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Flopticals

clined to offer specifics. Production is scheduled to begin in April, and the drive will be sold to OEMs and value-added resellers.

Although the technology may represent a breakthrough, it will be relatively inexpensive because it is based on standard media, Adkisson said. The drives will be sold to OEMs at a price of \$250 in quantities of more than 5,000.

Adkisson said he expects initial orders to come from distributors and resellers in the add-in business. System vendors require that there be multiple sources of a product before committing to implement it, he maintained.

Insite is offering to license the technology to other drive makers. Adkisson said Insite is in serious negotiations with a number of parties. However, he declined to name them.

USERS may prefer Insite to a tape drive because it integrates well with smaller systems. Like traditional drives, the disk does not require specialized software to manipulate files.

Eastman Kodak Co. subsidiary Verbatim Corp. as well as Xidex Corp. have signed on to produce media, an important factor if other peripherals makers are to consider manufacturing the Insite drive.

Robert Katzive, a vice-president at market research firm Disk/Trend, Inc., said the new drive's sluggish performance will relegate it to a backup role.

However, users may prefer Insite to a tape drive because it integrates well with smaller systems. Like traditional drives, the disk does not require specialized software to manipulate files.

"Most people prefer disk technology because it's faster and much more familiar to them," he said. "With a tape, you have to run it all the way to the end to get to a certain file, and you need specialized software."

Insite's floptical disk drive offers an average access time of 65 msec, far slower than many rigid drives. The Insite drive will fill a gap, offering backup for the smaller 3½-in. rigid drives, Katzive noted.

NETWORKING

AT&T grooms PBXs for data

Leverages ISDN support to push PC networking for its switches

BY ELISABETH HORWITT
CW STAFF

SANTA BARBARA, Calif. — While IBM has apparently cast off its Rolm Systems division PBXs from its ISDN and data networking strategies, AT&T recently laid out a strategy for providing data networking via its PBXs and ISDN.

The advent of Integrated Services Digital Network should boost the private branch exchange's credibility "as local arbiter of high-speed communication between PC and data center," said Thomas Nolle, president of Haddonfield, N.J., research firm CIMI Corp. PBX vendors have been unable to sell this idea in the past because PBXs were less effective than local-area networks for local communications and could not provide an effective long-distance

data link, according to Nolle. Now however, PBXs provide 64K bit/sec. ISDN links to "someone at a remote site who is not on your LAN," he said.

At a meeting here with the AT&T Digital Multiplexed Interface/ISDN Users Group, an organization of computer and networking vendors, the vendor announced plans to publish an interface for writing ISDN data applications that would link IBM Personal Computers via its System 75 and 85 PBX systems.

Based on AT&T's Digital Communications Protocol (DCP), the interface is a focal point of the vendor's strategy to position its PBXs as links between PCs at a local site and ISDN wide-area networks, according to Roger Boyce, AT&T product manager of PC-PBX connections.

IBM PCs equipped with the

DCP interface card can use the PBX to gain access to AT&T's Primary Rate ISDN service, which permits the user to "send files at 64K bit/sec. ISDN speeds from, say, here to Denver," Boyce said. Such a configuration is more cost-justifiable because the same PBX that handles PC data transfers can also be routing voice transmissions between sites over the same ISDN link, he added.

Fooling the applications

DCP is an existing AT&T interface for linking data equipment over the vendor's PBXs that supports the same 64K bit/sec. channels as ISDN. While DCP uses a different signaling protocol than ISDN, "applications don't see the difference," Boyce said.

AT&T sees the PBX-ISDN configuration as complementing

rather than replacing LANs or dedicated mainframe-to-workstation links, Boyce said. "If you're doing distributed database applications, you probably won't use a PBX." But by providing PC users with a 64K bit/sec. ISDN link on demand, the PBX offers a cost-effective long-distance connection for sites that cannot cost-justify a dedicated connection or T1 multiplexer, he added.

AT&T plans to release the DCP specifications next spring to selected vendors with popular PC communications software packages, Boyce said.

The company said it hopes, for example, to gain DCP support from Hayes Microcomputer Products, Inc.'s AT modem protocol, IBM Netbios LAN products and Digital Communications Associates, Inc.'s micro-to-mainframe software, Boyce indicated.

IBM's apparent withdrawal from the PBX arena may give AT&T more room to sell its DCP concept to IBM installations.

Factories need to shed custom code

BY ELISABETH HORWITT
CW STAFF

High up on the wish lists of manufacturing information systems and plant floor managers are development tools and common application interfaces that minimize the need to write customized code for multivendor connectivity, according to a recent study by Advanced Manufacturing Research, Inc. (AMR).

The Cambridge, Mass., research firm interviewed managers from 150 Fortune 500 companies about how they were coping with factory floor communications and what they would like to see in the way of new developments and products.

Approximately 23% of respondents had installed some version of a Manufacturing Automation Protocol (MAP) network, AMR said. Most were in pilot sites with eight or fewer nodes, with applications split between intercell and real-time support.

A majority of users were still using proprietary networks, citing high costs, fear of pioneering and lack of vendor support as reasons for not going with MAP, AMR said.

The study found two distinct computing environments within manufacturing firms. Plant floor managers focused on real-time and process applications and on networking cells. Cells are groups of shop floor devices and controllers that work on the same process or product line.

Only 30% of respondents were experimenting with LANs for intracell communications; *Continued on page 70*

Netwise to fashion tools for Netware

BY PATRICIA KEEFE
CW STAFF

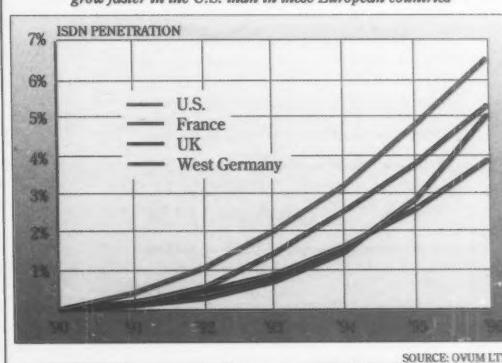
Netwise, Inc. in Boulder, Colo., has agreed to provide Novell, Inc. with tools for developing applications for Novell's Netware LAN Server, according to a non-exclusive marketing and development agreement between the two companies.

The products, which Novell has agreed to market, will include Netware versions of Netwise's existing tools, which are

said to facilitate the development of distributed applications by generating remote procedure calls (RPC). Netwise plans to develop other RPC products for specific Netware-supported environments and protocols. For example, support for Novell's SPX protocol in the DOS and OS/2 environments is scheduled for a first-quarter release.

Similar support for Digital Equipment Corp.'s VMS is also planned, the vendor said.

RPC essentially supersedes Novell's much ballyhooed value-added processors (VAP). In an interview, Mark Caulkins, vice-president of Novell's software group, conceded that the VAP was difficult to use. The VAP will make it easier to write to Netware, but it still will not be as easy as writing to OS/2, he said.



Bells can soon send at 155M bit/sec.

BY ELISABETH HORWITT
CW STAFF

LIVINGSTON, N.J. — Bellcore has announced the successful completion of feasibility testing for a prototype technology that could enable Bell operating companies to provide transmission services at up to 155M bit/sec.

Switched Multimegabit Data Service (SMDS) is a proposed Bellcore public network-based service designed to extend local-area network and other high-speed local communications links over the local loop, the Bell

operating company research and development subsidiary said.

If widely deployed by regional carriers, the technology could accelerate the growth of distributed processing applications, intercompany links such as electronic data interchange and LAN-to-LAN bridging, Bellcore said.

The organization has already demonstrated an SMDS prototype application for LAN-to-LAN bridging.

By providing standardized high-speed switched services, SMDS technology would ad-

dress the needs of large corporate users who find the current 64K bit/sec. version of ISDN "vastly inadequate in terms of bandwidth," according to Kenneth Phillips, chairman of the committee of Corporate Telecommunications Users.

First services

SMDS services are likely to be the first offerings made by the Bell operating companies that support the broadband Integrated Services Digital Network, according to Glenn Estes, a district manager at Bellcore, Broadband

ISDN is a still-embryonic version of the telecommunications standard that could support up to 200M bit/sec.

"ISDN typically defines interfaces and protocols" for a wide range of transmissions, including voice, data and video, Estes said. In contrast, SMDS fully defines a data-only service.

In the interim period before broadband ISDN becomes a usable standard, SMDS services are likely to deploy other technologies, such as the ANSI-based 802.6 standard for metropolitan-area networking, Estes said.

By offering such speeds over a switched network shared by

multiple customers, the Bell operating companies will save users money when sending over dedicated high-speed lines, Bellcore said.

SMDS services could be deployed within local public networks within the next two to four years, depending on availability of network equipment, Bellcore said.

Bellcore would not provide a date for its release of SMDS specifications to vendors for implementation in communications equipment. Nor would it reveal which, if any, of the Bell operating companies are currently contemplating the announcement of SMDS-based services.

BIT BLAST

GE and GM subsidiary to set up overseas EDI links

GE Information Services will be working with General Motors Corp. subsidiary Electronic Data Systems Corp. to set up electronic data interchange (EDI) links between General Motors and its suppliers in Europe.

Documents such as invoices and delivery schedules will be exchanged between GM and its suppliers by means of GE Information Systems' EDI Express software and services.

The GE subsidiary will also provide EDI consulting to EDS. The EDI network will facilitate GM's move to just-in-time manufacturing in Europe, as well as elimi-

nate paperwork, postal delays and human input errors, the companies said.

Telematics International, Inc. has announced a long-term agreement to supply its Net 25 family of packet-switching systems to NCR Comten, Inc., a wholly owned subsidiary of NCR Corp.

NCR plans to market the products worldwide and to use them in its internal data network, NCR Worldwide Internal Network.

Tellabs, Inc.'s network management system will form the basis of user configu-

ration and management features within BellSouth Corp.'s Flexserv family of services, the two organizations said.

Tellabs' Telemark system will reportedly allow users to consolidate or reroute dedicated digital circuits within BellSouth's operating companies' T1 connections.

Digital Communications Associates, Inc. has begun shipping FT/Express, a software product said to provide file transfer at rates up to 12 times faster than the vendor's existing Irmalink product.

The software runs with DCA's Irma family of micro-to-mainframe boards and is available in either an IBM CMS or TSO version for a fee of \$9,000 per CPU, the vendor said.

The IEEE 802.3 Committee has established a study group to investigate standards that can be applied to network hub devices such as star hubs, multiport repeaters and wiring concentrators.

Co-hosted by vendors Interlan, Inc. and BICC Data Networks, Inc., the group will hold its first meeting in Orlando, Fla., February 1-3.

Factory nets

CONTINUED FROM PAGE 69

the rest used some kind of point-to-point proprietary link between devices within a cell.

The MIS group focused on linking cell controllers, general-purpose computers and terminals onto a backbone network. Materials flow was typically handled by cell controllers communicating with one another as peers and also with a general-purpose host for overall coordination, respondents said.

While 77% of the respondents supported multivendor computing standard Open Systems Interconnect (OSI), more than 60% of the respondents had established a primary host computing platform, typically based on IBM, Hewlett-Packard Co. or Digital Equipment Corp. systems, AMR said.

Users look to the vendor

The conclusion was that while users looked to OSI for eventual multivendor connectivity, they expected their primary vendor to help them migrate to the standard.

IS departments at advanced companies are "looking beyond communications and . . . seeking a common application environment providing a common user interface, database access and programming interface," which would run across a variety of computing and networking systems, AMR said.

Such a platform could eventually make networking protocol issues obsolete, by allowing the user to access computing resources without worrying about what type of system or network they are on, AMR said.

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MANAGEMENT

TAKING CHARGE

Robert A. Zawacki

A downsizing checklist



Assemble 35 human resources executives from information systems organizations and you're sure

to get a free-flowing discussion about how to handle a variety of challenges.

That certainly was the case in a recent symposium that I co-sponsored in which such a group of IS human resources experts shared their experiences and opinions. The common concerns that emerged related to topics such as downsizing, innovative reward systems, mentoring, strategic human resources planning, customer service, performance appraisal, innovation and the question of hiring IS majors or general business majors from colleges.

In addition, there was general agreement on a string of recommendations relating to one key topic — downsizing — with which many participants had recent experience.

Their checklist for downsizing in IS includes many items:

- If you plan to cut 30%, cut at least 35% so you can get the unrest behind the organization and move forward. Always make your first cut deep enough to prevent future unanticipated cuts. A management team probably cannot survive two cuts — its credibility will

Continued on page 72

Stripping down IS

Playboy pares systems after 50% budget cuts

BY J. A. SAVAGE
CW STAFF

In his company's heyday, Playboy Enterprises, Inc. data processing director John Close was rolling in money to spend on new technology. Close built up a multinational system to run everything from gaming operations in the Caribbean to the company's own credit card transaction system.

After 20 years with Playboy, Close is now in charge of tearing down the systems he built. He says he is not sad about the demise of the centralized data center. Instead, he hopes downsizing will provide new business opportunities for the company.

"In the late 1960s and early 1970s, we were trying to find ways to deal with the money. We couldn't make decisions that didn't work. We were trying to stay in the lead with technology, but it wasn't so much of a planning process as a reactive pro-

cess," Close says. "As the social aspects of the country changed, the magazine had less of an impact on the way the country thought. That's when the decline started."

After suffering a 50% cut in budget in the last five years, Close decided the only way to help the company survive in the long run was to dismantle his mainframe shop. He expects to finish the job and have applications running on minicomputers and personal computers and in service bureaus by spring. The host IBM 4341 system will be gone.

Close is undecided about his personal plans after the phase-out is complete.

Running an empire

Close built the systems to handle all of Playboy's computer needs. There were limousine services, modeling agencies, Playboy Clubs and casinos, resorts, the Playboy cable channel and, of

Data View

Hot spot

*As technical analyst positions gain popularity, they will also experience greater salary growth**

	Average salary in thousands	Expected 1989 increase
Operations analyst	\$33.4	6.2%
Scheduler	\$27.3	6.1%
Telecommunications analyst	\$31.1	6.1%
Data processing operations manager	\$48.9	5.2%
Maintenance programmer	\$33.1	5.3%

* Based on a survey of more than 400 medium-size and large data centers nationwide

SOURCE: INTERNATIONAL ASSOCIATION FOR COMPUTER OPERATIONS MANAGEMENT CW CHART

PROFILE

John Close



ERIC BAKKE/PICTURE GROUP

Position: Data processing director, Playboy Enterprises, Inc.
Mission: To downsize Playboy's MIS operation because of the company's financial cutbacks.

course, *Playboymagazine*.

"For example," Close says, "for the modeling agency, we provide models throughout the world, with each transaction handled through an IBM 3270-type terminal — everything from accounting to scheduling, access to external databases, making airline reservations, spreadsheets, development packages — that kind of thing. *Playboy* magazine uses the system primarily for accounting and financial services."

The Boulder, Colo., IS operation serviced international operations as well as corporate offices in Chicago, Los Angeles and New York, each of which have representatives from all of Playboy's businesses. These offices also are serviced in-house by PCs and one mid-range system in Chicago.

Close's position in the hierarchy indicates the importance Playboy puts on information systems: He reports to the chief financial officer, who in turn reports to the chief executive

officer. For decades, that CEO position was held by Hugh Hefner, whom Close calls "Hef," and was recently turned over to Hefner's daughter Christie, who has been the company's chief operating officer since 1984.

The party's over

Playboy is run as a business, Close insists. "At least, that's always been the attempt," he adds. Close says that when he started, the company was more into the party scene, "but in the early 1970s, we began to see that change."

Since the early 1980s, the company has sold off most of its assets, such as the Playboy Clubs and resorts. In cutting costs, MIS cannot be eliminated, but Close says it has been squeezed more than other areas. "As you're trying to make sink-or-swim decisions for the company, MIS gets to the point where it can get squeezed more than anything else, particularly as those decisions become less dependent

Continued on page 72

New Hancock IS chief looks at big picture

BY JAMES CONNOLLY
CW STAFF

BOSTON — Now that the budget process and staff performance reviews are out of the way, Diane Smigel can focus on her long-range plans.

Smigel spent much of her first two months as vice-president of information services at John Hancock Mutual Life Insurance Co. working on the "excruciating" annual budget and review processes. But she also has found time — often at home — to make plans for 1989.

Smigel, with 20 years of IS-related experience in the insur-

ance industry, was promoted in October to John Hancock's top IS job. Formerly a second vice-president in charge of planning and support services, she replaced Edward J. Boudreau Jr., who became president of the firm's mutual fund subsidiary.

Taking work home

"Focusing on the big picture on a daily basis is a challenge. This is a big, busy place. One of the challenges every day is to rise above the meeting syndrome and concentrate on where we want to go in the long run," Smigel said. "I do a lot of my thinking at home so that I can be accessible during

the day, and I do a lot of it after my family has gone to bed."

When asked what she hopes to accomplish, Smigel quickly mentions continuing efforts launched by Boudreau during his two-year tenure. One goal is the strengthening of what she said are good relationships among the central IS group and the application developers working in John Hancock's business units. Boudreau drove decentralization of the development process by assigning 500 programmers and analysts to the business units.

The 450 employees in Smigel's central IS group run the data centers and networks and

support functions such as an information center and IS training.

She will be focusing much of her efforts on expanding training programs — particularly in cross-training programmers and analysts and educating senior IS managers — and building a better technical architecture. The latter, she said, involves improved communications among IBM mainframes, Digital Equipment Corp. minicomputers and Wang Laboratories, Inc. office systems as well as standardization of databases. In addition, it means "sunsetting" some products that are not considered strategic and encouraging the use of new technologies such as image processing and expert systems in practical applications.



Hancock's Smigel

Smigel joined John Hancock in 1987 after working as a consultant for Arthur D. Little, Inc. and in IS at The New England and Capital Holding Corp.

CALENDAR

JAN. 8-14

Enterprise T-1 Networks: Emerging Strategies. Washington, D.C., Jan. 9-10 — Contact: Telecom Publishing Group, Attn: Conference Registrar, P.O. Box 1455, Alexandria, Va. 22313.

Automated Clearinghouse Services in Government Seminar. Arlington, Va., Jan. 11 — Contact: NACHA, Suite 640, 1901 L St., N.W., Washington, D.C. 20036.

JAN. 15-21

National Retail Merchants Association Annual Convention and Business & Equipment Exposition. New York, N.Y., Jan. 15-18 — Contact: NRMA, 100 W. 31st St., New York, N.Y. 10001.

PTC '89, Conference of the Pacific Telecommunications Council. Honolulu, Jan. 15-18 — Contact: Pacific Telecommunications Council, Suite 308, 1110 Aloha Ave., Honolulu, Hawaii 96826.

Computer Graphics New York. New York, Jan. 17-19 — Contact: Exhibition Marketing & Management Co., Suite 1110, 8300 Greensboro Drive, McLean, Va. 22102.

Supercomputing Solutions '89: New Technologies for Super Performance Computing. New York, Jan. 17-19 — Contact: Supercomputing Solutions '89, Suite 1110, 8300 Greensboro Drive, McLean, Va. 22102.

Executive Conference for Corporate Data Processing Managers. New York, Jan. 18 — Contact: International Data Corp., Box 955, 5 Speen St., Framingham, Mass. 01701.

Zawacki

FROM PAGE 71

be shot.

- If you are going to cut 35%, make the cuts at all levels, including the direct reports to the IS director. In every IS organization I have been in, a complete level of middle management could have been eliminated with the organization actually becoming more effective. We will see very flat IS organizations in the future.

- Before you cut, define your core technology people. These are people you must have to move forward after the cut. Consider giving these employees bonuses or else the best among them will leave.

- Consider downsizing your management ranks as an opportunity to evaluate your managers. Although it is painful, most IS organizations believe the net effect of this action is healthy because it forces decisions that should have been made months or years ago. Use performance tools and supplement them with a rating form that evaluates managers on their competencies and skills.

- When you are evaluating individual contributors, consider their motivation in addition to

their skills, aptitude, experience and past performance. Take care to remember that programmers can have all the skill in the world, but they will still not be capable of producing up to their potential if they are not motivated.

- Evaluate the cut list for the impact on protected classes of people.

- Communicate decisions as soon as possible. This must be done face to face by the immediate manager. The grapevine will already have alerted people to strange activities in the organization, and people will have a fairly good feel for the downsizing. Remember, research indicates the grapevine is 80% accurate.

- Have a system established to out-process the people who are cut. If resources permit, provide assistance with placement counseling.

- Evaluate your management development program. After downsizing, management must send a positive message that this is the team for the future. Then there should be a training program that reinforces that message.

Zawacki is president of Zawacki & Associates, an information systems consulting firm in Colorado Springs.

Stripping

FROM PAGE 71

on information and more dependent on trying to save the organization."

At its peak, the MIS department employed 80 people. Now it is down to less than half that. Close says that most applications were developed in-house until the early 1980s. He adds, "Now most of the applications have been acquired from OEM people." In the new environment, Close says, there will be minimum development, just typical maintenance operations and interface with outside software developers.

The host mainframe in Boulder will be eliminated, and the site will be shuttered. "Large applications, ones that are too large for our proposed direction, will go off-site into a service-bureau-type environment, using the base that we've already built on VM. We're going to draw upon a System/38 Model 700 in the Chicago office to do limited processing — a lot of the batch work. Our PCs will do the very small operations that we plan to move over," Close says.

The first office to get new treatment will be in Los Angeles. At this point, Close is identifying

applications that are too large to run in-house. He says, "We take those things that can be done locally on minis and micros."

Close says he is limiting applications going to a service bureau to only the "pieces with heavy CPU demand, which are very intricate in the way they're written."

Los Angeles will be a pilot site this spring, Close says, because of its cable television production capacity. "Since that is an intense database-driven kind of operation, we want to support it in the same manner they've been accustomed to." Los Angeles will be a learning experience for Close, and, he says, "That process can be applied to any new applications" in other offices.

Downsizing will have its costs, Close admits. He hopes to offset much of it by selling equipment, but he does not expect to reap much from the resale value. "We'll be lucky to break even," he says. Close hopes to cut the cost of Playboy's IS by 25%.

Despite the preponderance of *Playboy* magazines mixed in with computer publications in his office and the fact that he gets to call the former CEO by his nickname, Close maintains that Playboy is a business like any other, and IS can still be a key to its continued survival.

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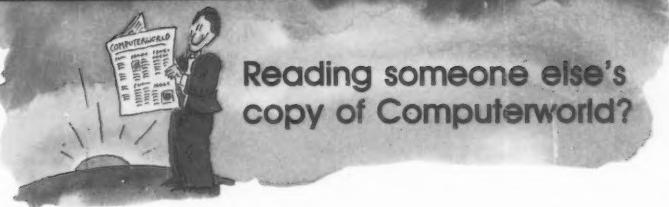
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 - 23. Dr. Mgr., Suprv., Analyst, of Systems
 - 31. Dr. Mgr., Suprv., of Programming
 - 35. Dr. Mgr., Suprv., Methods Analyst
 - 36. Dr. Mgr., Suprv., QA/VP
 - 38. Data Comm./Network/Systems Mgt.
 - OTHER COMPANY MANAGEMENT
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 - 12. Vice President/Asst. VP
 - 13. Treasurer, Controller, Financial Officer
 - 41. Engineering, Scientific, R&D, Tech. Mgt.
 - 51. Sales/Mktg. Mgt.
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 - 60. Consulting Mgt.
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 - E. Office Automation Systems
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 - 60. Government — State/Federal/Local
 - 65. Communications Systems/Public Utilities/Transportation
 - 70. Mining/Construction/Petroleum/Refining/Agric.
 - 80. Manufacturer of Computers, Computer-Related Systems or Peripherals
 - 85. Computer & DP Services, including Software/Service Bureau/Time Sharing/Consulting
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 - 23. Dr. Mgr., Suprv., Analyst, of Systems
 - 31. Dr. Mgr., Suprv., of Programming
 - 35. Dr. Mgr., Suprv., Methods Analyst
 - 36. Dr. Mgr., Suprv., QA/VP
 - 38. Data Comm./Network/Systems Mgt.
 - OTHER COMPANY MANAGEMENT
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 - 12. Vice President/Asst. VP
 - 13. Treasurer, Controller, Financial Officer
 - 41. Engineering, Scientific, R&D, Tech. Mgt.
 - 51. Sales/Mktg. Mgt.
 - OTHER PROFESSIONALS
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COMPUTER INDUSTRY

INDUSTRY INSIGHT

Clinton Wilder

The industry year in lists



Nineteen eighty-eight. Leap year, Olympic year, election year. It's all over now, except for the shouting — and the list-making.

As we do every year, we'll skip the 10 Best Movies and 10 Worst-Dressed Women and Men compendiums and concentrate on what we humbly purport to know best.

The 10 Biggest Stories of 1988:

1. The standards wars. The Open Software Foundation vs. Unix International — nee Archer group — and the Extended Industry Standard Architecture vs. the Micro Channel.

2. The IBM Application System/400 — nee Silverlake.

3. Computer Associates reaching the \$1 billion revenue plateau by acquiring Applied Data Research — and CA's rebuffed attempt to swallow Management Science America (MSA).

4. The saga of Prime Computer — from the hunter of Computervision and Calma to the hunted of MAI Basic Four. In a year of unwanted suitors such as CA, Daisy Systems and Tektron, MAI's Prime pursuit proved the most significant.

5. Apple's "look-and-feel" suit against Microsoft and Hewlett-Packard.

6. The struggle of mini makers such as Data General and Prime against the accelerating trend of MIS buyers to powerful PCs and local-area networks.

7. The creation of IBM United States under Terry Lautenbach. IBM's flattening of its organization and pushing of decision making out to its business units mirrors the organizational trend being practiced by many of its largest customers.

8. The dynamic random-access memory shortage.

9. The woes of Lotus — missed shipping dates, executive departures and a falling stock price.

10. The minisupercomputer industry shakeout.

11. (Last-minute addition.) The merger of Morris Associates and Duquesne Systems.

Continued on page 74

Postal Service cries uncle

Scraps sweetheart contract with Perot because of legal protests by EDS

BY MITCH BETTS
CW STAFF

WASHINGTON, D.C. — The U.S. Postal Service has given up on its controversial computer services deal with Perot Systems Corp. because of legal protests filed by archival Electronic Data Systems Corp. (EDS).

Postmaster General Anthony M. Frank announced Dec. 16 that the Postal Service and Perot have agreed to terminate the contract, albeit reluctantly. In a statement, Frank said, "The contract has been tied up so badly by protests and lawsuits that we have lost much of the original opportunity."

"The studies we had hoped to complete last August cannot now be done before next February and could well be further delayed by active litigation," namely ongoing lawsuits between Perot and EDS, Frank said.



H. Ross Perot

A recent court order [CW, Oct. 24] sought by EDS limits Perot Systems to nonprofit work through Dec. 1, 1989, and effectively killed the deal, the postmaster general indicated.

EDS and Perot are involved in a bitter feud dating back to De-

ember 1986, when EDS founder H. Ross Perot left EDS and its parent General Motors Corp. EDS argues that Perot is violating a severance agreement stating that he would not compete with EDS for three years.

Perot Systems, based in Vienna, Va., issued a statement that supported Frank's decision, adding that "efforts to make major changes in a large organization inevitably energize forces opposed to change."

Splashy reentry

The Postal Service contract was signed in May as part of Perot's splashy reentry into the computer services market. The two-part contract allowed Perot's new company to study methods of improving postal operations and then implement the ideas under a shared-savings contract.

But the unusual arrangement triggered howls of protest from

competitors and members of Congress because it was not open to competitive bidding and seemed to lock Perot Systems into a 10-year sweetheart deal with the agency.

EDS and McLean, Va.-based computer services firm Planning Research Corp. each filed official protests with the General Services Administration's Board of Contract Appeals.

Not revenge

The EDS protest came after several top EDS executives defected to work for Perot Systems, but EDS denied that its protest was sparked by any revenge motives.

Jack Biddle, president of the Computer & Communications Industry Association, praised the decision to scrap the contract.

He said the action preserves the government's policy of open competition and avoids the financial conflict of interest that occurs when a company involved in "problem identification" also provides the hardware and software solutions.

European unity to alter PC sales strategies

BY AMIEL KORNEL
IDG NEWS SERVICE

PARIS — The European Community's plans to abolish internal trade barriers in 1992 are forcing personal computer suppliers to modify their production and distribution strategies.

"Europe is still a very fragmented marketplace," said Brigitte Morel, managing director of Dataquest/Intelligent Electronics. Many already have begun shifting manufacturing to local plants.

training and support — to professional users.

PC suppliers are also being forced to reexamine their production strategies in light of the European Community plans, lest they find themselves locked out of what will become the world's largest PC market, according to Dataquest/Intelligent Electronics. Many already have begun shifting manufacturing to local plants.

'Attic assembly'

More than 50% of the PCs shipped in Europe during the past two years were made in Europe, according to Dataquest/Intelligent Electronics researcher Kees Dobbelaar. Most imports came from Southeast Asia, not from the U.S. or Japan. Even these imports are starting to be challenged by what Dobbelaar called "attic assembly," by small local firms importing components from Asia.

IBM accounted for 31.3% of the production volume in Europe in 1988, according to Dataquest/Intelligent Electronics' preliminary figures. It was followed by Ing C. Olivetti & Co. at 15.6%, which manufactures its PCs near corporate headquarters in Ivrea, Italy; Apple Computer, Inc. at 9.6%, which has a facility in

Cork, Ireland; and Hewlett-Packard Co. at 5.5%, which has doubled production this year at its plant in Grenoble, France.

Compaq Computer Corp., which this year accounted for only 3.7% of European production, recently built a plant in Scotland.

Shoring up local identity

Other non-European firms are expected to reinforce their European manufacturing presence in order to shore up their local identity and avoid the potential protectionist fallout of the European Community plans.

With user demands becoming more sophisticated, it is increasingly difficult for PC dealers to maintain profitability, said Michel Aguerreberry, managing director of Agena SA, a major

French distributor. He predicted the European dealer network will grow only 5% annually during the next five years.

"The expected market growth will lead to a bottleneck," he said, "if manufacturers don't change their attitudes toward distribution channels." He said this means manufacturers must reduce their reliance on direct sales and form closer partnerships with large distributors and value-added resellers.

Paul Helming, vice-chairman of Compack Europe S.A., agreed. "The best partnership strategy is the one which adapts best to the variety of local market situations while at the same time taking advantage of the [overall] European dimension business is moving into," he said.

Data View

Venture capital: What's hot
Largest computer industry venture investments during the third quarter of 1988

INVESTMENTS IN MILLIONS

Ardent Computer \$SSSSSSSSSSSSSSSSSSSSSSSSSS \$20

Momentum Technology \$SSSSSSSSSSSSSSSSSSSSSSSS \$17

Mips Computer Systems \$SSSSSSSSSSSSSSSSSSSSSSSS \$11

Avant! Communications \$SSSSSSSSSSSSSSSSSSSSSSSS \$10

Micr. Linpus \$SSSSSSSSSSSSSSSSSSSSSSSSSSSSSSSSSSSS \$10

SOURCE: TECHNOLOGIC PARTNERS
CW CHART

Wilder

CONTINUED FROM PAGE 73

Comebacks in 1988:

- John Cullinane, Cullinet.
- Gene Amdahl, Andor.
- H. Ross Perot, Perot Systems.
- Steve Jobs, Next.
- Bill McGowan, MCI Communications.
- Ed Cherney, Encore International.
- Bill Poduska, Stellar.
- Allen Michels, Ardent.
- Ken Oshman, Echelon.
- Moving up in 1988:**
- Terry Lautenbach, IBM.
- George Conrades (again), IBM.
- James Cannavino, IBM.
- Frank King, Lotus.

• Bob Weiler and John Landry, Cullinet.

- Allen Loren, Apple.
- Anthony Craig, Prime.
- Curtis Hessler, James Unruh, Unisys.
- Larry Perlman, CDC.
- Dennis Vohs, Ross Systems.
- Robert Allen, Robert Kavner, AT&T.
- Gil Williamson, NCR.

Moving out in 1988:

- Bill Lowe, IBM.
- Joe Henson, Prime.
- Jerome Meyer, Honeywell Bull.
- Allen Krowe, IBM.
- Kaspar Cassani, IBM.
- David Chapman and George Tamke, Cullinet.
- Bill Graves, MSA.
- The Lotus departures — Chuck Digate, Irfan Salim, Mike Kolowich, Palmer True,

and John Shagoury, among others.

- Roy Folk, Ashton-Tate.
- Peter Appleton-Jones, Elksi.
- Norbert Berg, CDC.
- Thomas Roberts, CDC.
- Jan Lindelow, Unisys.
- Del Yocam, Apple.
- Debi Coleman, Apple.
- Stu Miller, Lynn Pearce, Software AG.

Casualties in 1988:

- Saxy Computer.
- Celery Computing.
- Cydrome.
- Scientific Computer Systems.
- Ramtek.
- Rise Technology.

Wilder is *Computerworld's* senior editor, computer industry.

Paradyne woes end with \$250M sellout to AT&T

BY NELL MARGOLIS
CW STAFF

Paradyne Corp.'s long and rocky road back from legal scandal and financial disaster took a sharp turn last week when AT&T agreed to acquire the beleaguered data communications equipment maker for approximately \$250 million, or \$10.25 per share.

Analysts, who expected a bid for Paradyne — a frequent entry on lists of probable acquisition targets — but voiced surprise that the bidder turned out to be AT&T, viewed Paradyne's sales and service strength as fueling the offer. "Paradyne has a fairly sizable sales force, and their distribution channel and service organization are considered quite good," said Theodore Moreau, an analyst at Robert W. Baird & Co. in Milwaukee. Services, said Moreau, accounted for approximately 20% of Paradyne's 1987 revenue of \$233 million.

Paradyne's "international distribution, sales and service are of great interest to us," an AT&T spokeswoman confirmed.

Paradyne's large installed base and Largo, Fla., plant also received mention as attractive to AT&T. "I think that [AT&T is] desperate to improve its market reach into data networking and realistic about its ability to do it through internal development," said Maria Lewis, an analyst at Shearson Lehman Hutton, Inc.

Lewis dismissed as public relations spin AT&T's contention that the Paradyne acquisition will also bring AT&T "some manufacturing and development expertise that they don't already have." However, she and others expect the communications giant to employ a balance rather than a hatchet when it comes to evaluating the companies' respective product lines.

Derailed in '85

Given Paradyne's history, said Andrew Schopick, an analyst at Gartner Group, Inc. subsidiary Soundview Financial Group, the AT&T offer is a coup for the Florida-based company. Once regarded as a promising communications contender, Paradyne was derailed by a 1985 indictment for fraud in connection with a purportedly rigged government systems bid.

The organization's 1987 settlement with the U.S. Department of Justice dismissed all charges other than conspiracy, to which the company pleaded guilty; however, four years of harrowing legal combat depleted both its morale and financial resources — legal bills alone were estimated at approximately \$18 million, according to a company spokesman.

Moreover, further legal woes and the need to triage outdated technology and unprofitable product lines mired Paradyne in further staggering expenses.

Under the terms of the proposed acquisition, AT&T will hold Paradyne as a subsidiary; the company will remain at its Largo site, under the direction of current Chief Executive Officer John Mitcham, who was brought in from IBM last summer to help turn Paradyne around.

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MARKETPLACE

1988 year for bargain shoppers

This year promises more of same, as vendors are expected to unveil products

BY THOMAS J. DONOVAN
IDC FINANCIAL SERVICES CORP.

During 1988, used equipment prices experienced a dramatic decline for a number of computer products. For the owners of equipment — both data processing users and equity investors — this drop may require a write-down of their portfolios. However, for purchasers of used equipment, the marketplace presents particularly attractive values.

IBM equipment ranging from 4381 processors to 3380 disk drives to 3800 laser printers fell victim to these declines. Retail prices for the 4381 Model P13, for example, fell from January prices of 58% to November prices of 32% of IBM list price.

Bargain hunters will also find savings in the storage marketplace. In January, a head-of-string 3380 AA4 with one 3380 B4 was trading retail for about \$31,100. By November, the retail price for the same equipment was only \$10,700. This represents a decline of 66%. IBM 3800-3 laser printer prices also fell 32% in that time.

Even alternative vendors' equipment was not spared from suffering through substantial declines in used prices. The Wang Laboratories, Inc. VA-65 pro-

cessor dropped from 57% of list price in the beginning of the year to current prices of 30%, while the Digital Equipment Corp. VAX 8600 fell from 70% to 43% over the same time span.

Some of these declines can be attributed to the normal life cycle of computer products and the impact of replacement technology, while other declines are more difficult to explain. The drops in the IBM direct-access storage device (DASD) products mentioned above can be accounted for by the shipment of higher capacity 3380 K drives, falling prices of older 3380 D and E drives and increased plug-compatible manufacturer competition.

On the other hand, the 4381's demise was caused more by IBM's upgrade pricing and a general lack of end-user demand.

Predictions

What can we expect in 1989? IDC Financial Services Corp. said that IBM will be making major product announcements in both DASD and medium- and small-scale 370 processor families. In the first half of 1989, IBM is expected to announce the replacement for the 3380, called the 3390; the replacement for the aging 4381 family of proces-

sors, dubbed the 4391; and additional models of the Enterprise System/9370.

DEC, Wang and several other computer manufacturers are also expected to make significant

What posture should MIS directors take under these circumstances? Purchasing new equipment from the manufacturer without regard to secondary market activities and potential future announcements can deplete corporate funds unnecessarily. As a result, MIS departments may be left without the capital to purchase or lease additional equipment when signifi-

Astute MIS directors should consider the purchase of used equipment or short-term leases to fill interim needs and conserve funds for purchase or long-term lease of future products.

For MIS directors with limited budgets, the new year will present a significant opportunity to bring their data centers up to almost leading-edge technology at very reasonable expenditure levels. Those directors may want to consider IBM 3090 processor base models, Amdahl 5890 processors and National Advanced Systems XL processors for their high-end needs, all of which are projected to trade for less than 50% of list price by the end of 1989. Significant opportunities will also exist for DASD and cartridge tape and a whole range of other computer products.

For more information, contact IDC Financial Services' Terri LeBlanc at 508-872-8200.

1988 hardware marketplace

Product	Current list	Used price	Used price
		first-quarter 1988	fourth-quarter 1988
IBM 3090			
Model 200			
(64x32)	\$4,585,970	\$3,348,000	\$2,752,000
Amdahl 5890			
Model 300E			
(64x32)	\$4,000,000	Not trading	\$2,520,000
IBM 3081KX			
(32x24)	\$2,680,731	\$563,000	\$348,500
IBM 4381			
Model P13			
	\$447,731	\$260,000	\$143,000
DEC VAX			
8600			
	\$469,875	\$329,000	\$202,000
Wang VS-65			
	\$35,200	\$20,000	\$10,500

SOURCE: IDC FINANCIAL SERVICES, INC.
CW CHART

announcements in 1989.

As these new products displace the prior generation, supply of used equipment will increase. This increased supply will, in turn, create downward pressure on secondary market prices.

cant new announcements are made. Given the bargains on the secondary market and the projected announcements of replacement products, it is difficult to understand why anyone would purchase new equipment from the vendor at list price.

The BoCoEx index on used computers

Closing prices report for the week ending Dec. 16, 1988

	Closing price	Recent high	Recent low
IBM PC Model 076	\$750	\$900	\$400
XT Model 086	\$1,125	\$1,250	\$900
XT Model 089	\$1,350	\$1,575	\$1,050
AT Model 099	\$1,875	\$2,400	\$1,700
AT Model 239	\$1,925	\$2,900	\$1,800
AT Model 339	\$2,250	\$3,600	\$2,425
PS/2 Model 30	\$1,650	\$1,700	\$1,300
PS/2 Model 50	\$2,500	\$2,600	\$1,900
Compaq Portable I	\$725	\$975	\$600
Portable II	\$1,825	\$2,000	\$1,650
Portable III	\$2,600	\$3,550	\$2,500
Portable 286	\$1,750	\$2,400	\$1,675
Plus	\$1,100	\$1,250	\$800
Deskpro 286	\$2,275	\$3,150	\$1,800
Deskpro 386	\$4,000	\$5,100	\$3,800
Apple Macintosh 512	\$650	\$950	\$550
512E	\$850	\$1,025	\$600
Plus	\$1,125	\$1,325	\$950
II	\$4,200	\$5,100	\$3,800
Toshiba T3100	\$2,500	\$2,500	\$2,000
Toshiba T5100	\$4,300	\$4,700	\$3,850

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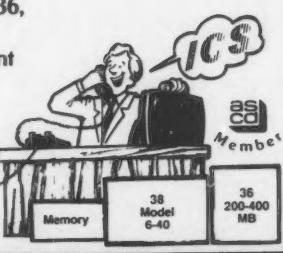
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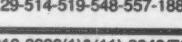
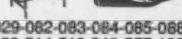
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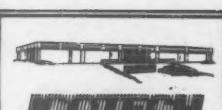
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COMPUTER CAREERS

Hiring to remain cautious in '89

Employment will improve steadily but slowly; consulting will show strength

BY ALAN RADDING
SPECIAL TO CW



Barring unforeseen economic developments — such as a recession prompted by financial dislocations — MIS professionals can expect to see slow improvement in the career picture during 1989.

"We expect 1989 to be up a little bit, but not too much," says Herb Halbrecht, president of Halbrecht Associates, Inc., a Stamford, Conn., executive search firm.

Despite corporate budget tightening, firms will continue to fund MIS as long as top management remains convinced about its value, Halbrecht says.

Since the 1987 stock market crash, numerous companies, particularly in financial services, have cut back development to save money, according to Roger O'Connor, a staff consultant at Edward Berlin Associates, Inc., a New York-based compensation consulting firm.

O'Connor says he expects cost containment to still dominate in 1989 but has noticed a thaw in the development freeze and opening up of hiring. "It'll probably continue to loosen up in the first quarter," he says.

An executive at Salomon Brothers, Inc., says the brokerage and investment banking firm is hiring at a slow, steady pace. "But I don't think we'll ever see the incredible hiring of two or three years ago," he notes.

Government boom

Perhaps ironically, one of the brighter hiring spots may be the government sector. Despite intensifying concern about the federal budget deficit and some financial worries at the state and local levels, computer professionals say they see signs of a robust employment picture for MIS people in government.

"One way government agencies tighten up is to automate to boost productivity," says Fran Abernathy, president of Abernathy Business Consultants, Inc., in Gaithersburg, Md., which specializes in computer consulting for government.

Government computer procurement contracts, such as the recent U.S. Air Force order for minicomputers, show that several large government agencies are actively automating, according to Abernathy. She says that she has also noticed increased work with state and local government.

When consultants are busy, increased MIS employment often follows as employees are

hired to implement and operate new systems, Abernathy adds. "We usually advise on what skills are going to be needed in-house," she notes.

Consultants also are busy in the corporate sector, especially in areas in which the labor market is so tight that companies have trouble attracting skilled employees. "They are turning to

THE MIS areas expected to be most in demand in 1989 are relational databases, telecommunications and networking. Expertise in Unix and personal computer systems, including PC management, will also show strong growth in 1989.

consulting firms, and the consulting firms are hiring in droves," says Ellen Saunders, director of sales at Computerpeople Consulting Services in Worthington, Ohio.

Throughout the Midwest, a growing service sector and a re-suscitated manufacturing sector appear to be keeping demand for MIS professionals high, Saunders says.

On the East Coast, there is strong demand for programmers and programmer/analysts with one to four years of experience, reports Janice Serinese, market-

ing director of Automated Concepts, Inc. in New York, another consulting firm. Some openings are created as data centers move out of New York to the suburbs, albeit with a corresponding number of displaced workers.

There is a definite falloff in demand at the top of corporate MIS pyramids. "There is a consolidation going on at the senior level because of all the mergers and acquisitions," says Victor Janulaitis, president of Positive Support Review, Inc., a consulting firm in Los Angeles.

The corporate restructuring

my remains sluggish, reports John MacDonald, a partner in the Dallas office of Big Eight accounting and consulting firm Arthur Young. The weakness in the oil industry, which has spilled over to banking, finance and real estate, has cut demand for MIS professionals.

"People don't have high expectations for 1989. A lot of people thought a turnaround would come earlier, and it didn't," MacDonald says.

Skill set

The MIS skill areas expected to be most in demand in 1989 are relational databases, telecommunications and networking. Expertise in Unix and personal computer systems, including PC management, will also show strong growth in 1989, observers say.

Recruiters and others following the MIS job market expect salaries to remain steady, with small, incremental increases in the neighborhood of 4%, although on the West Coast, Janulaitis says he expects salary increases to average about 7%.

Recruiters report a significant reduction in job hopping recently, a development typically associated with a slack pace of hiring. The caution is reinforced by the possibility of unexpected takeovers and restructurings, according to Edward Berlin's O'Connor. "More people are staying put," he says.

Radding is a Boston-based author specializing in business and technology.

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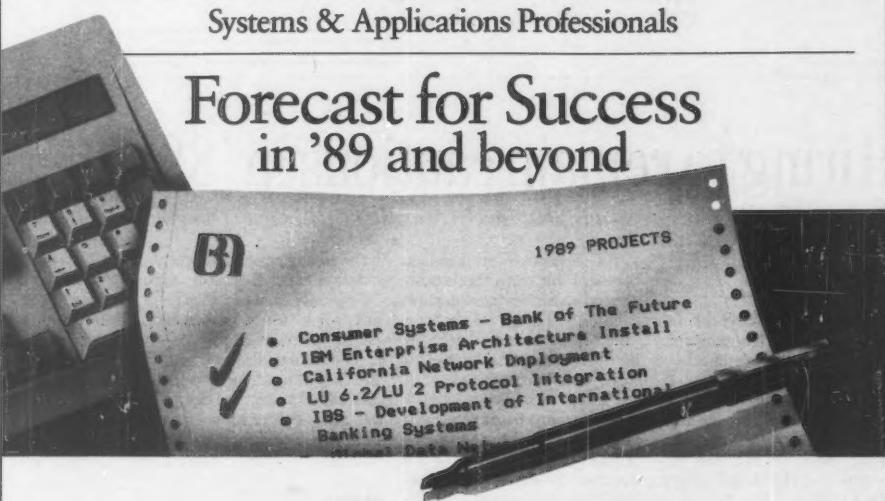
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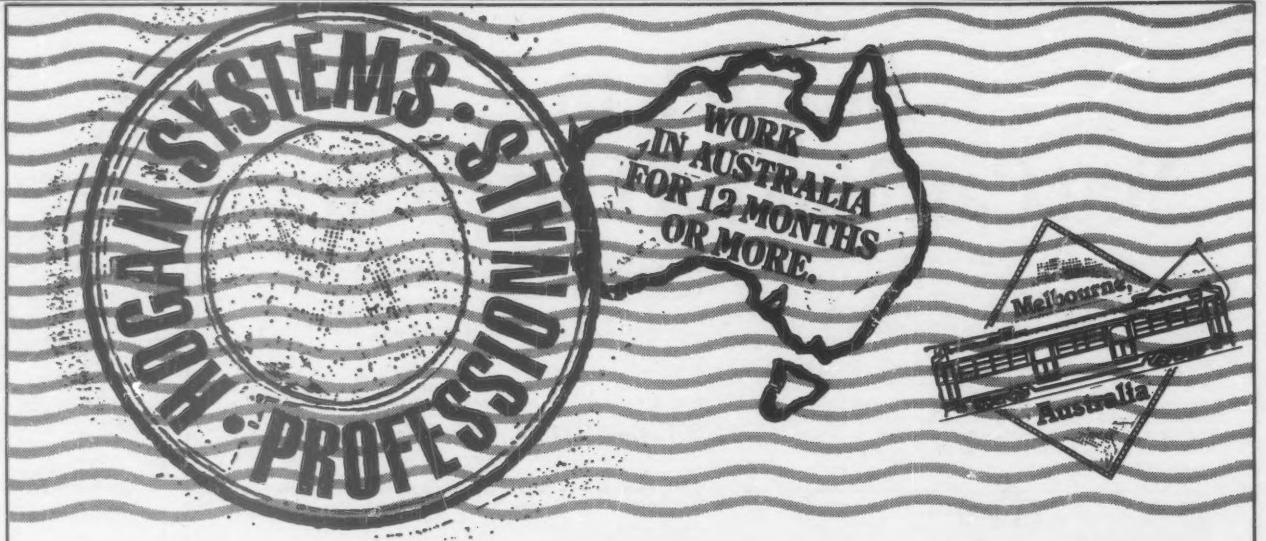
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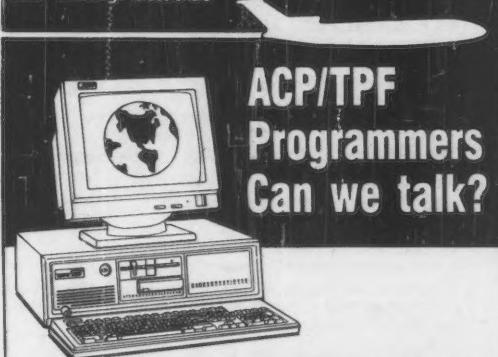
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TRAINING

A strategic plan for the 1990s

The role of MIS will call for well-defined professional development aims

BY LAWRENCE K. GRODMAN
SPECIAL TO CW

As we approach the 1990s, with computers and communications woven tightly into the organizational fabric and people costs exceeding 85% of most information systems budgets, it is clear that enterprises must introduce another layer of strategic planning. This layer relates to the ongoing professional development of the MIS staff and managers.

Two aspects of the planning are essential. First, education and training specialists should understand the growing importance of their roles. They should learn to view themselves and their responsibilities in a different light as agents of change and developers of minds.

Training and education traditionally have been viewed as a fifth wheel or, at best, an add-on in all but the most progressive enterprises. Professional development must be viewed as an essential MIS activity.

Second, the formulation and annual update of the strategic plan for MIS professional development must be consistent with the strategic plans of both the enterprise and MIS.

Paul Strassmann, former vice-president of information systems at Xerox Corp., has said, "You must consider the strategy before you design the structure." This observation applies to professional development organizations and to enterprises themselves.

In formulating a strategic plan for MIS professional development, one must start with a mission statement for the organization. This statement is a prerequisite for the development of plans at three levels: strategic, tactical and operational.

At each level, one must identify issues and objectives before defining the elements of the plan. In this top-down model, the plan elements at the strategic and tactical levels drive formulation at the lower levels.

How it might be

For example, a strategic issue might be "user involvement in systems development," leading to the strategic objective of defining and encouraging more user involvement. This objective could in turn generate plan elements such as understanding benefits and tradeoffs of user involvement, classifying users

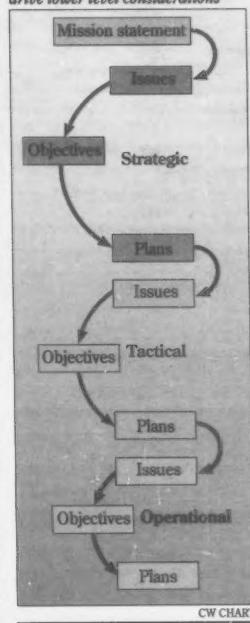
with respect to needs and educating users in applications development.

On the tactical level, the corresponding issue might be "to define user involvement that reflects the systems development approach and a user's needs." The tactical objective might be to outline procedures that foster greater user involvement. The tactical plan elements then might include defining new user responsibilities, assessing education and training needs and identifying solutions to communication problems between users and MIS.

On the operational level, the issue may be "to develop procedures for new and increased user involvement," leading to the objective of formulating tasks, priorities, budgets and resources. The elements of the operational plan might be specifying knowledge and skill requirements, acquiring reference materials, conducting work sessions with user and IS managers and formulating a training budget for users.

In forming and updating a professional development plan, managers must understand the intended audience. They also should be involved in the cre-

Levels of planning
The mission statement and high-level issues, objectives and plans drive lower level considerations



ally the enterprise-wide plan, should be regarded as a feedback loop — that is, human resources should be part of the MIS plan and the MIS plan must feed the professional development strategic plan.

A strategic plan for MIS professional development should help ingrain in the organization such relevant education and training issues as cost-benefit analysis, the roles of various media, management development practices and the need to sell professional development to management.

A professional development plan should also reflect an understanding of the technical environment as well as management needs. The latter could include the direction and priorities of the organization, competition, budgets, recruitment and the roles of information and MIS.

The plan should also reflect the need for interpersonal skills in areas such as instruction of adults, communicating with users and management of changes.

Organizations must undertake rigorous planning that reflects the growing importance of information systems in corporate and government organizations, the dependence of those information systems on people and the high cost of people.

Grodnman is president of QED Information Sciences, Inc. in Wellesley, Mass.

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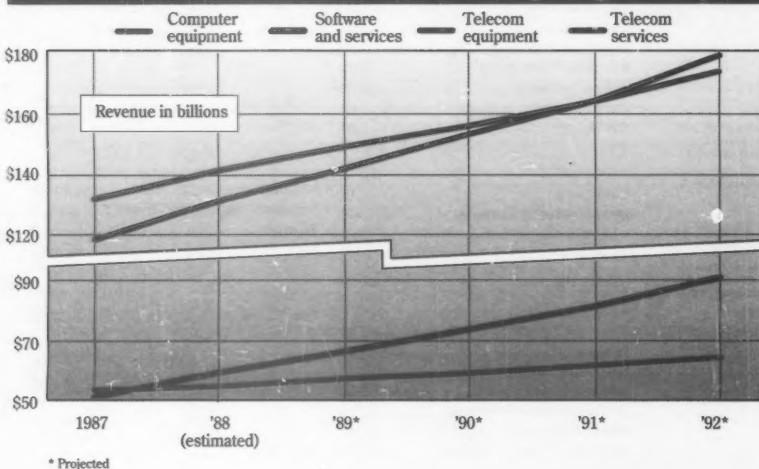
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TRENDS

Computer industry outlook

Software and services sector should chalk up the greatest gains



Industry observers who have had little to say beyond "Bah. Humbug!" about the state of the computer sector of late may be suffering the effects of visits from the Ghost of Computer Industry Past. Recent figures compiled and issued by the Computer and Business Equipment Manufacturers Association (CBEMA) show a still-vital industry that, while slowing because of maturity, is nevertheless outstripping the gross national product and is projected to keep doing so.

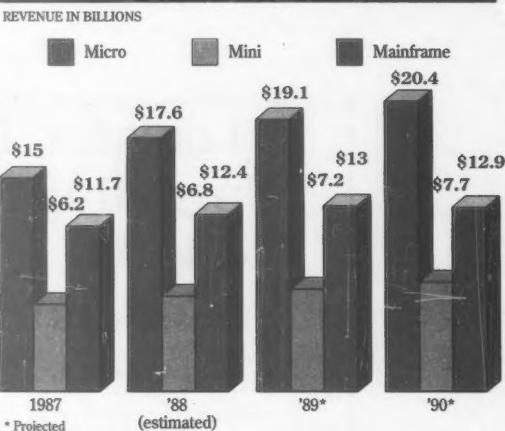
Software and services revenues, already the most robust of four industry segments measured, are expected to continue leading growth through 1989. CBEMA sees the software sector growing 11% to \$66.6 billion in 1989, compared with a 15.1% rise in 1987 and an estimated 15.8% increase in 1988.

Computer equipment revenues grew 10% last year to reach \$118.4 billion and are estimated to grow 11% to \$131.4 billion this year. By the end of next year, CBEMA said, an 8% rise to \$141.9 billion is expected.

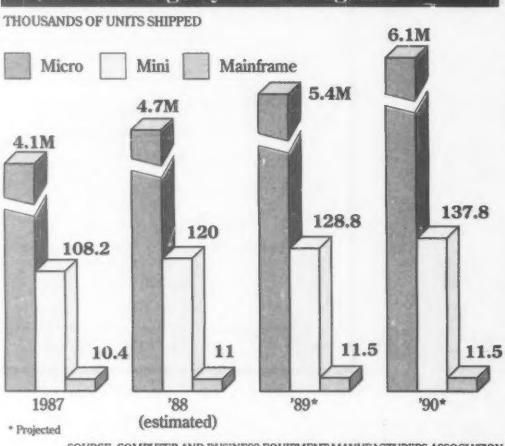
Growth in telecommunications equipment revenues slowed from 1987's 4.1% to approximately 3% in 1988; revenues are expected to increase by some 4% in 1989 to \$57.5 billion. Telecommunications services growth, already down from 7.6% in 1987 to an estimated 6.9% in 1988, should decrease further to 5.4% in the coming year. That diminished percentage growth, however, will nevertheless represent a \$149.1 billion industry niche.

NELL MARGOLIS

Micros should keep up growth . . .



. . . while large systems stagnate



INSIDE LINES

*'Twas the season of giving and all through the yard
Not a vendor was stirring, nor even this bard*

*'Up, up, up! the editor did cry
Our readers await; our trade we must ply
Rich gossip we solemnly promise, by golly
And right now, I promise, I ain't feeling jolly'*

*'Please sir, one writer did say with a bow
It's Christmas, O master, we want to leave now!
Nay, read what my lips say, the boss-man cracked
Those glowing reviews can be quickly revoked'*

*'On Barney, on Daly, on Cortese and Ryan
Get back to your stations! Let's see fingers flyin'!
Go Hamilton, Brandel, go Pitta and Keefe
Go after that story like hounds with bared teeth!'*

*'Yo, Wilder, Horowitz, yo, Savage, Margolis
You can do much more, and I really know this
Take Connolly, Alexander and, yes, Mr. Gibson
To Armonk and Maynard your pens should be blitzen'*

*'Call in Bozman, call Betts and, hey, call in Moran
It's high time to show the whole world that we can'
Just then, just that moment, as the troops did assemble
A senior staff member did stand up and tremble*

*'If we're desperate, the cat should be freed from the bag
Let's preview for readers our January rag
You know on Jan. 9 we will print words from Akers
Let's give a taste now just to show we're not fakers'*

*'The IBM chair through an hour's talk did last
Examining the ghosts of IBM's future, present, past
Explaining the whys of the corporate vivisection
John Akers looks down on a Blue resurrection'*

*'It takes that cold shower . . . John A. said with knowing
to get your blood going . . . and our blood is going'
If from IBM's pinnacle you'd like to hear
Grab our first reg'lar issue of the upcoming year*

*'Another voice cried, 'Hey, there, boss — stop the presses!
A Microsoft rumble I've heard that perplexes
In OS/2 Extended, the source code, it seems
Has suddenly in Armonk stirred up some bad dreams'*

*'Microsoft needs it for true compatibility
But IBM has trouble assessing reliability
In the wrong hands, it's said, IBM fears this code
Would put upstart challengers 'pon the right road'*

*'We're hot now; we're humming,' the boss said with glee
I think tunnel's end now I'm starting to see
What else, now, what else, he remarked as he tore
Through the now-bustling newsroom, out looking for gore*

*'Hit by a bolt, our benchmark whiz smiled
'Hey, boss, my quest's slip 'ry as treasure of the Nile
From DEC since July an audited report we've awaited
And here still I sit, boss, completely unsatisfied'*

*'And now IBM with its benchmarks will show
that the 4381 and 9370 really do glow
They redid the network to rebut TPS saviors
And lo and behold — performance barely wavers'*

*'Then, like a happy Santa, the editor did sit back
No more inches to fill — finally gifts he could wrap
'Let's call it a wrap, now, and clear out of here
Let's rest and get ready for a happy new year'*

*'To his readers he offers a parting thought:
We hope you could use what this past year we've wrought
We've done our job well, but still, we're not happy
We'll try to do more — and we hope this ain't sappy'*

*Our hot line (800-343-6474 or 508-879-0700) you can call
and News Editor Pete Bartolik's staff will carry the ball*

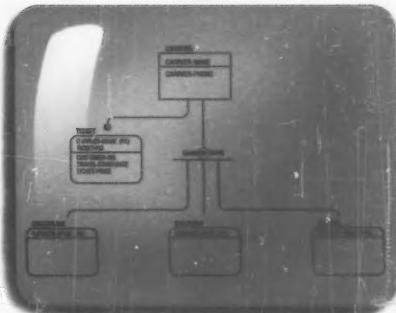
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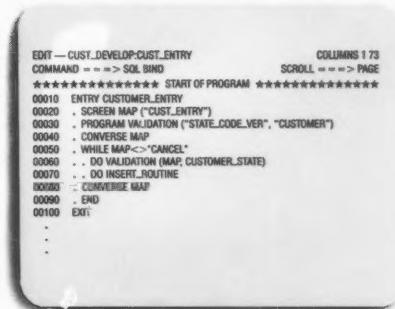
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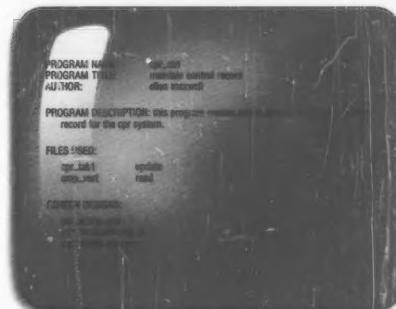
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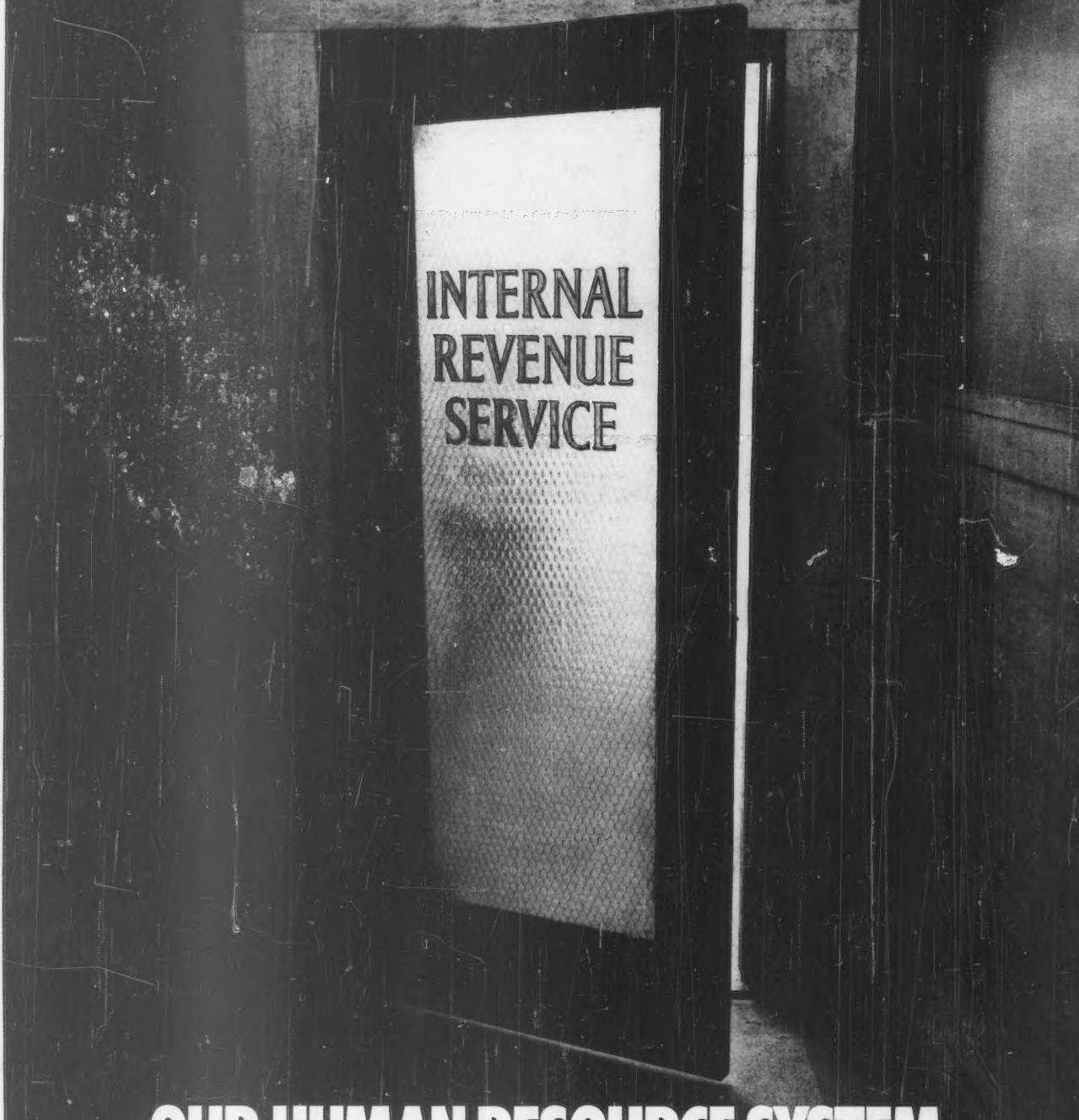
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